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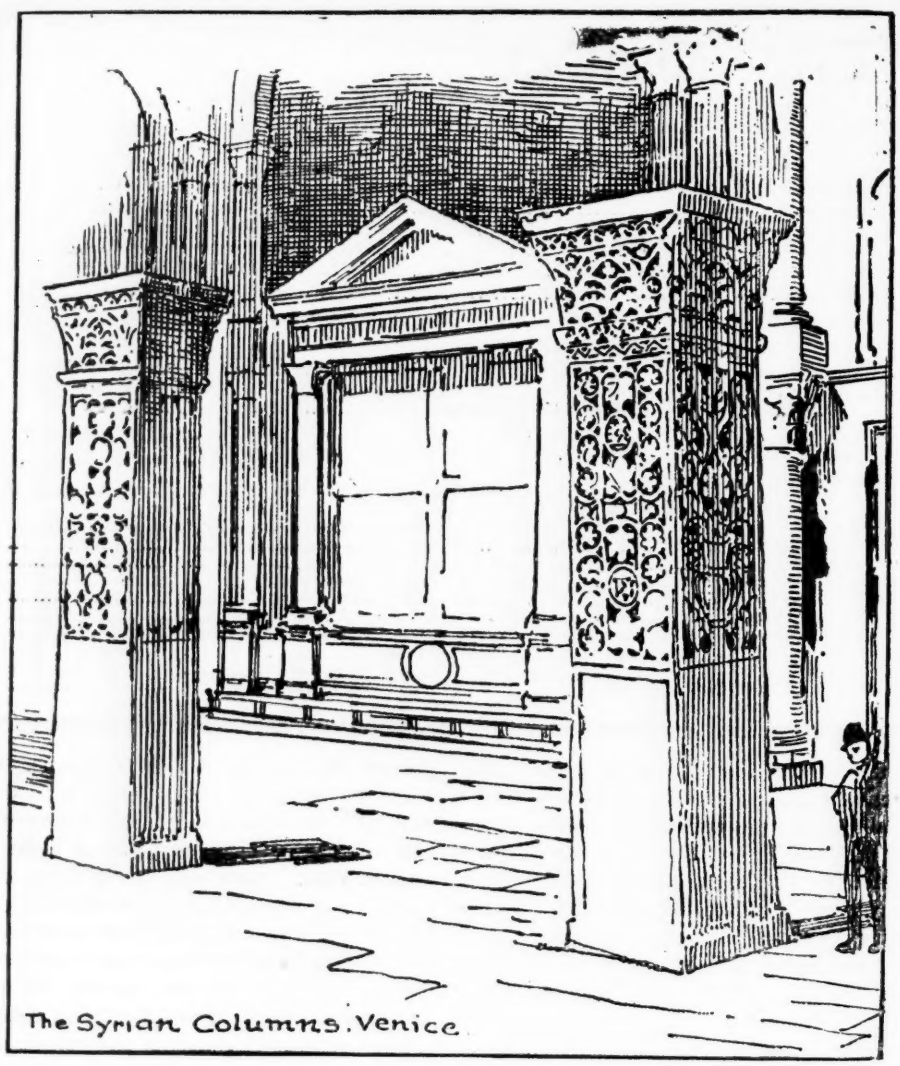
The "Colonne Soriane," St. Mark's, Venice.

CLOSE against the southern flank of St. Mark's church, just where the great fifteenth century gateway of the Ducal Palace leads to the "Giant's Staircase," within the courtyard stand two singular-looking square monolithic piers of hard limestone, each covered on three sides with elaborate oriental carving—carving unlike any to be elsewhere found in Venice—reminding one of Persian tiles or Eastern carpets, and yet with a certain special character of its own which distinguishes it from the genuine Byzantine and Classical fragments of sculpture built up in the walls of the adjoining basilica. These two columns have, in addition to their flowery Eastern carving, two very curious circular panels on each of their outer sides or fronts, filled in with singularly puzzling monograms which have hitherto remained unexplained. The chronicles and old guide books of Venice are almost silent as to their history. Sansorina in his "Citta Nobilissima" (1570), for instance, merely describes them as the Syrian columns brought from Acre by the Crusaders, and having inscriptions in the "Syrian language." All that we can discover about them is that they were transported from Acre to Venice in the middle of the thirteenth century, at the time of the great double victory won by the Venetians over the Genoese in the waters of Tyre and Acre; and we may, perhaps, conclude that their presence on the Piazzetta has some reference to this event, but there is no historical evidence to prove such to have been the case. On the contrary, they may have been brought over merely as ballast to some returning empty galley, in the way in which so many of the artistic treasures robbed from the Levantine sites were procured for the decoration of the Patria. The two columns seem to have been set up in the Piazzetta with the intention of forming an important arched entrance to the baptistry of the basilica. To the ancient capitals an abacus of ordinary Venetian type of carving was added to receive whatever superstructure may have been originally intended—something, perhaps, resembling the curious elongations of the great west front of the basilica. But whatever was the intention of the builders in the thirteenth century, no trace of any such design now remains, owing to the manner in which the outside of St. Mark's has been rebuilt and restored time after time. The large crosses in flat relief on the lower portions of the columns seem to belong to their thirteenth century adaptation by the Venetians. On the inside of the columns are rebates or grooves for the gates or doors, but no trace of hinges remains. We must, therefore, conclude that such gates or doors were designed to work on pivots at top and bottom in the oriental manner.

The interest attaching to these columns is not so much in their present position, or their adoption by the thirteenth century Venetians as part of the external decorations of St. Mark's, as in their origin and the associations with a little-known type of art which they represent. We know that they were brought over from Acre in the middle of the thirteenth century, but what position they may have occupied in that famous city it is now quite impossible to determine. They are monoliths on so large a scale, that one is tempted to conceive them the decorations of an important city gate, more especially if the interpretations of the monogram inscriptions should prove correct.

Acre, the scene of so many thrilling and important episodes all through the two centuries of the Latin Kingdom's existence, has in modern days shrunk to about one-third of its former extent. In the early Middle Ages it was certainly the most important political and commercial centre of that wonderful borderland between European civilisation and Eastern tyranny, if not barbarism, constituted by the Latin principalities of the Levant, which in modern language would perhaps be dignified by the title of a "buffer-state." Absolutely nothing of any importance remains in modern Acre of so remote a date as the thirteenth century, and therefore it is perhaps almost useless to speculate upon the original position occupied by these columns at that time. Acre was divided up into "bici" or quarters belonging to the various nations and races constituting its citizens, and it would appear from such mediæval plans of the city as we possess that the Venetian quarter of the city was intimately associated with the port. If the columns of the Piazzetta once formed, as they seem to have done, an ancient gate of Ptolemaic Akka, we may perhaps be allowed to imagine it the port or water-gate of the city, which would afterwards come within the more immediate control of the Venetians. But such a supposition entirely depends upon the interpretation of the monogram inscriptions in the four circular panels on their fronts. The identification of these inscriptions with any known Levantine alphabet is due to one of the professors in the American College at Beirut, who suggests that they are in the Nabatean or earliest Cufic of the period beginning with the Christian Era. This gentleman ingeniously reads inscription No. 1 as a monogram of the name of Acre in its more primitive form of Akka or Aco, by taking the diamond-shaped letter or symbol in the centre of the monogram as the initial vowel, then the K or Arabic Kaf on the right, and the terminal vowel on the left resembling a Greek E reversed to form the complete word. This theory, is not, however, completely conclusive, and demands verification by a specialist in Cufic, who would also perhaps be able to read inscription No. 2.

However these inscriptions may be translated or the alphabets to which they belong may be identified, these two columns represent a type of art in their sculpture which has received but little study, and they are probably the only examples to be found in Europe on so large a scale. The sculpture (see plate in this issue) is precisely that of all the curious monuments which are neither distinctively Roman, Greek, or mediæval, in that long tract of country stretching between the Gulf of Akaba and the Upper Euphrates



The Syrian Columns. Venice.

In other words, they represent "Semitic" art in as far as such a thing can be said to exist. The Holy Land of Palestine, Syria, and the Sinaitic and trans-Jordanic regions have always been occupied to some extent by Semitic nations, although, owing to an inherent nomadic character, the race has often dwindled under the intrusive influence of European colonisation in Roman and mediæval times. The ancient Jews, during their five hundred years' occupation of the country, seem not to have created one solitary surviving monument which can with any certainty be attributed to them; and their congeners, the Arabs of more modern times, cannot be credited with any artistic inventiveness or genius. The Saracenic splendours of Cairo owe their origin to Coptic workmen (see the researches of M. Gayet, the French archæologist), and the decorative details of Damascus are but a mingling of Persian and Byzantine elements. Between the remote history of the ancient Jews, with their absolute deficiency in artistic expression, and that of the modern Arabs, intervenes an interesting period during which a genuinely Arab race or tribe, the Nabatean, was induced to abandon the nomad life, and under the influence of Romano-Greek civilisation, to develop the remarkable "style" of art of the monuments of Petra. This chapter of history is usually dated from about the third century B.C. until the crushing of this almost independent nationality by the Emperor Trajan in A.D. 105, when its capital Petra was abandoned. The strange and imposing creations of these rock-hewing Semites, which remind one more of the Renaissance vagaries of Dresden or the Jesuit style of the sixteenth century than of any contemporary Classic work, from which they are nevertheless copied, naturally ceased with the national life; but the style continued to survive to some extent long after, independently of the Byzantine and Persian influences fated to supersede it. The supposed Jewish synagogues of very uncertain date, whose ruins are scattered over central Syria, exhibit sculpture which belongs to this primitive Semitic attempt to erect buildings and monuments of an architectural character in rivalry with the flourishing cities of the Decapolis and the Roman Empire. All through the history of the Semitic world the same peculiarity of development presents itself. The Arab and Jew are incapable of invention, but their copies and adaptations of the arts of Aryan nations are always tinged with a certain special character.

In the case of the Jew, almost all efforts at artistic display betray the taste for what is second-hand, which is simply proverbial of the race. The Arab, actuated by a greater desire for luxury than the Jew, adopts the decorations of civilised life, but applies them in a way which adds to their richness of effect regardless of propriety in application, and sometimes produces a result almost equivalent to originality. In the later days of the Middle Ages the Arabs of the Holy Land and Egypt received a remarkable impetus from the Gothic style of the twelfth and thirteenth centuries imported by the Crusaders. The luxurious homes of the Frankish lords of Kerale, Acca, or Edessa were designed by their European owners, but the building and furnishing of them seem to have been the work of native hands, and this interpretation of European inventions by the uninventive Asiatic, to meet the demands of a different climate and mode of life and an extravagant luxury, produced the "Saracenic" style of the twelfth to sixteenth centuries. Since that period very little European influence has been brought to bear on the Levant in a way which would give any artistic development, and, as a consequence, the *motifs* for decoration and architecture left behind by the last Crusaders still survive, and the modern traveller is astonished to see a degenerate pointed arch style adopted as a rule for modern houses and mosques, which frequently look as if they might have been built in the thirteenth instead of the nineteenth century.

In a precisely similar way the Arab and other Semitic races of the Levant carried on the traditions of the Romano-Greek styles, which they had first learnt to copy in the palmy days of Petra, long after the decay of the Roman Empire, and until the great revolution of 1099 introduced a total change of ideas. The monuments of the Holy Land may consequently be divided into two very clearly-defined sections by this date of 1099. After that date everything with any artistic pretensions is in the Gothic style of early mediæval Europe; before that date the traditions of Rome and Greece seem paramount, and the distinctively characteristic Byzantine style of Justinian's reign is exceedingly rare. Of the few Byzantine buildings remaining in the Holy Land, the most important are the substructures and Golden Gate of the Haram enclosure at Jerusalem. The two columns of the Venetian Piazzetta illustrate some of the peculiarities of the "Semitic" style. It will be noticed that the ornament is spread over the surface of the columns in a way peculiar to Saracenic art, without reference to any constructive meaning or appropriateness. The capitals are clearly enough copied from classical types, but instead of the Byzantine adaptation of classical detail, with its constructive meaning in volute and moulding, this more Eastern example is merely a network of ornamental detail and decoration. The ornament is the usual vineleaf pattern, so common in Semitic buildings, rock-cut tombs, and synagogues in the Levant. The vine as a decorative element in architecture is as characteristic of the Holy Land as the acanthus is of Rome or the honeysuckle of ancient Greece. The early Christians seem to have introduced it into Italy and Byzantium with their religion of Semitic origin. Another peculiarly common Eastern feature is the design in the side panels of clumsily-shaped vases holding flowers; in the present case the vases are almost indistinguishable from the floral ornaments. These clumsy attempts to represent one of the simplest objects suited to decoration sufficiently exemplify the helpless incapacity of the Semite to carry on artistic expression beyond the simplest forms of conventional ornament. Mohammed and Moses are both credited with a desire to prevent their disciples from studying the source of all truly progressive and fine art—the representation of living forms; but perhaps their objections to such art study may have arisen partly from a prudent consideration that it is

no use doing anything in art unless you can do it well. Certainly the Semitic races have never displayed any qualifications for the higher branches of art, and the most admired of Saracenic monuments are more remarkable for an infinite multiplicity of minute details—insignificant and uninteresting in themselves—than for any æsthetic quality.

CAN WE DATE OUR SAXON CHURCHES?—I.

By PROFESSOR BALDWIN BROWN.

THE question of the distinction between Saxon work as a whole and Norman leads to the further problem of a chronology within the pre-Conquest period. This covers some 450 years, and within it it would be natural to expect considerable architectural changes. It is the purpose of these two papers, supplementary to those which have recently appeared in the *Builder*, to ask the question, What criteria exist for fixing the relative dates of the fairly numerous monuments which fall within the general limits of the period? With regard to some of these there is already practical certainty. For reasons which it would be tedious to discuss, all authorities seem at present agreed in assigning a date in the seventh century to the early foundations below Gundulph's work at Rochester, to Lyminge (the small apsidal church), St. Pancras Canterbury, Reculver, and Brixworth, and the crypts at Ripon and Hexham. Parts of St. Martin, Canterbury, may be even earlier; while, of northern examples, Escomb, Monkwearmouth, and Jarrow would be by most people included in any early list.

On the other side, there are not a few churches that are clearly of a very late date in the period. Kirkdale, Yorks, and Deerhurst Chapel are attested as such by inscriptions, and advanced Romanesque features, such as angle shafts and roll mouldings, in other examples bring them well forward in the eleventh century. In the case, however, of by far the largest number of Anglo-Saxon* remains there are no generally accepted signs of date, and opinions as to their respective epochs have been little better than guesswork. The ubiquitous Wilfrid has been credited at one time or another with a good proportion of our pre-Conquest churches, and the seventh or eighth century has been made responsible for work like the tower at Monkwearmouth, which probably belongs to the eleventh. Records of church building occur throughout the Anglo-Saxon period. After the first great missionary age was over, we read of events like the rebuilding in the eighth century of the church at York, with its thirty altars, that must, one would think, have given an impetus to church extension all over the North. Subsequent to this came the Danish desolation, but even after the inroads had begun we hear of local activity in church architecture on the part of bishops such as Swithun of Winchester, who died in 862 A.D. The close of the next century witnessed a widely-diffused revival encouraged by King Edgar and carried out under Dunstan, Ethelwold, and Oswald. Canute, at the beginning of the eleventh century, built and rebuilt numerous churches and monasteries, and in the middle years of it one of the laws ascribed to Edward the Confessor refers to the fact that there were then three or four times as many churches as in the early days, in terms which seem to imply that church building was a feature of the age just prior to the Conquest.

We can obtain a convenient division of the time from the conversion of Ethelbert to the Norman Conquest by making an early period end with the first inroad of the Danes and the ravage of Northumbria, a middle period cover the epoch of the Danish wars, and a late one begin with the reign of Edgar. These three periods would correspond roughly to the years 600-800, 800-950, 950-1066. Are there, we have to ask, any criteria by which we can distinguish the work of these periods; and further, if the "late" buildings, which in the nature of things will be most numerous, can be separated as a whole from the rest, are we able to subdivide these, say, into the Edgar group, the Canute group, and that associated with Edward the Confessor?

The possible criteria are those of general appearance and proportions, of plan and of details. It is obviously useless to argue that a building is of particularly early date because it appears rude and primitive in workmanship or is small in scale. If we did this we should have, conversely, to put elaborate or workmanlike structures, or those of large size, correspondingly late. But Wilfrid's crypts and the porch at Monkwearmouth are well wrought and cunningly enriched, while Brixworth is one of the largest churches of the period that we possess. The value of the criterion of the proportions of ground-plans may be judged from the evidence presented in the *Builder* of October 6, 1900, where it seemed to be indicated that very long and narrow proportions were an early sign, but that fabrics of quite other relative dimensions might be of equally remote a date. Height of walls should not be an early indication, for the peculiarity does not occur in the two classes of structures that may have influenced our early work—that is, in Irish oratories or in the basilican churches of Roman tradition. It may have been due to the desire to get the windows high up out of the way of the prowling spoiler, and this would locate the feature in the time of the Danish inroads or the Middle-Saxon period.

The criterion of plan as distinct from proportions is of more value as an indication of relative dates.

It is noteworthy here that in some of the very earliest structures we find already modifications of the simple Irish or Roman scheme that affect both interior arrangement and external form. Brixworth has a clear rectangular space marked off, possibly for monastic use, between nave and apse, and the early group in Kent show something of the same arrangement. The side chapel and the western porch of entrance appear at St. Pancras, and these seem the beginnings of what is again a specially Anglo-Saxon peculiarity—the gradual development from such elements of the cruciform plan and the western tower. If the transept grows out of the side chapel, we may infer the comparative dates of pseudo-cruciform churches by the stage at which the evolution is shown. Though no argument can be drawn merely from the fact of the presence or absence of a tower—for towers existed in Christian architecture as early as Anglo-Saxon churches—yet the *western* tower carries with it, as we shall see, an important chronological indication. Though it may not be possible to ascribe to any of our western towers a really early date, there may be differences of period among them that would be worth investigation. Brixworth and Deerhurst have an early aspect, and the latter has detail that seems the most Carolingian thing in Anglo-Saxon work.

This mention of detail brings us to the last and, in a sense, most important class of our available criteria. As a matter of practice, inferences based on the apparent place of a monument in an assumed scheme of development, though they have their place and value in architectural discussion, are seldom so cogent as the more direct witness of some definite feature or piece of detail, and in what follows attention will be mainly concentrated on evidence of this character.

The buildings above enumerated as by general consent in the first flight in respect to date are distinguished by the absence of certain features which are common in Anglo-Saxon churches generally. We do not find in them long-and-short quoins, double windows with mid-wall shafts, double-splayed lights, pilaster-strips, strip-work surrounding openings, nor, it may be added, internally splayed loops of a tall narrow form. In any discussion of the relative date of these features, there is, of course, a danger of arguing in a ring, and trying to prove X early by the absence from it of Y, and Y late because it does not appear in X. We are fortunately not left in this vicious circle, for several of the features in question appear on the continent in dateable surroundings, and this suggests a *terminus post quem* for their use in our own country.

The part of the continent where most of them are to be found is Germany. Hitherto there has been a tendency in discussions on this subject to turn to Italy for prototypes, but as a fact there is no need to bring Italy into the argument at all. We can find what we want in the way of prototypes much nearer home. The form of Wilfrid's crypts has been connected with that of the *cubicula* of the Roman Catacombs, but the truth is that such barrel-vaulted chambers are common enough in Gaul and Germany, where we find them of various ages, from the early examples, probably of the sixth century, that have been lately excavated in the cemetery of St. Matthias at Trier. The double belfry-openings belong originally to Italy, but Italy gave them to Germany where they are familiar features in a vast number of the Romanesque churches, and it is from German and not Italian sources that our pre-Conquest builders borrowed them. The Anglo-Saxon bell-tower, as a whole, has been claimed as Italian, but though Italy is the land of towers and produced them of most kinds and at all epochs of Christian architecture but the earliest, yet our particular form of tower, the single one joined to the church at the western end, is distinctly not Italian, but German. There are special features connected with Anglo-Saxon western towers, notably their growth in some cases from a western porch, which give them a place apart, but we can hardly dissociate the appearance of the feature in our later pre-Conquest architecture from its prevalence in the neighbouring lands of the lower Rhine and

* As these papers contain references to the architecture of Saxony under the term "Saxon," the expression "Anglo-Saxon" will be used to denote the examples in our own country.

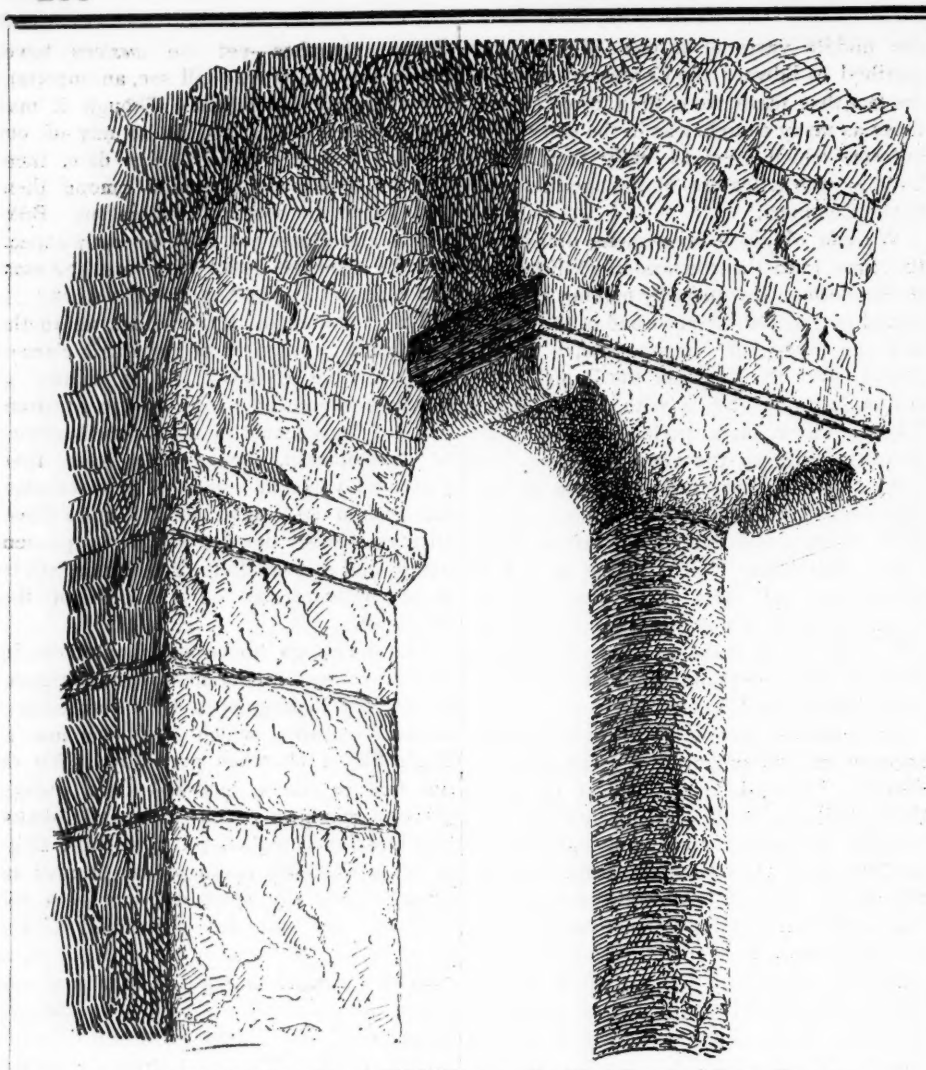


Fig. 1.—Mid-Wall Shaft and Corbel Cap in the West Front of Trier, Germany. Middle of the Eleventh Century.

Westphalia. It was from there and not from Italy that we were influenced in the large employment we made of the form. German, at any rate, is the half-round stair turret attached to the western tower, though abroad we generally find a pair of such turrets at the two sides of the tower instead of one in the front, as is the case at Brixworth, Brigstock, and our other examples.

Neither in Germany nor, to the writer's knowledge, elsewhere, do we find our elaborately-turned baluster-shafts, our long-and-short quoining, our strip-work round openings, and these must be regarded in the meantime as showing in our old English builders an original treatment of details which matches their special arrangements in planning and distribution. On the other hand, the mid-wall work, the double-splayed windows, and the upright pilaster strips appear in Early German Romanesque in much the same form as among ourselves. The only difference in the first case is that the through-stone, which is commonly with us a flat chamfered slab, is in Germany very often a moulded corbel cap that may either be used alone above its shaft, or may surmount a normal cap, plain or enriched, of the cubical type familiar in our Lincolnshire bell-towers. The small double-splayed lights have at times the central opening cut, like ours, in a mid-wall slab. The likeness between the German *Lisenen* and the Anglo-Saxon pilaster strips is generally acknowledged.

Any one familiar with the details of Anglo-Saxon buildings who explores, say, the west front of the Cathedral at Trier, of the first half of the eleventh century, from which is taken fig. 1, will be readily convinced that Germany is likely to furnish the most instructive parallels to our native work of the pre-Conquest period. When we reflect on the political and ecclesiastical connexions between the Carolingian realm and England, these affinities in architectural forms will not surprise us. If their existence is admitted, and we can discover when the features in question came into use in Germany, we shall find a valuable aid to the chronology of Anglo-Saxon buildings. To assume such borrowing is not derogatory to our native builders. Whatever we may have accomplished in the earlier period in the seventh century, there is no question that the Minster of Charles the Great at Aachen represents, both in construction and details, an architectural achievement that the England of the ninth and tenth centuries certainly could not match, and the Minster gave an impulse to building in Western Germany that carried the art rapidly forward. In the Carolingian epoch, and in that of the Saxon Emperors which followed it, as in the Gothic period two centuries later, England was receptive rather than herself a centre of architectural influence.

NOTES.

The New Government Offices.

THE admirable article in the *Times* on this subject, noticed in our last issue, has been followed in Tuesday's issue by a communication "From a correspondent," obviously officially inspired, and which may be taken as a characteristic expression of English official obstinacy and Philistinism. It is now denied that the proposal to have Mr. Brydon's building carried out by the Office of Works originated in any idea of economy far from that, Mr. Akers-Douglas was only actuated by consideration for the comfort of those who would have to occupy the building. Then why did he say nothing about this motive when the question was asked in Parliament, and why did he pointedly assert, on the same occasion, that "a considerable saving would be effected"? The obvious fact is that the argument on account of economy has been discredited, and must therefore be abandoned. Sir John Taylor, we are told, is "an eminent architect," and carried out the front of the Record Office in Chancery-lane, "one of the most beautiful buildings in London." The apologist of the Office of Works could hardly have done worse for its cause than to let out that they consider that piece of cast-iron commonplace beautiful architecture; and in justice to Sir John Taylor—one of the most modest and amiable of men, who has the goodwill of all who know him—we do not believe he has ever claimed to be an eminent architect in the sense in which those words are generally understood. Mr. Tanner, we are told by this official spokesman, is not so well known, but no more was Sir J. Taylor when the Record Office was entrusted to him, yet "The choice is amply justified by the result;" and so we are told it will be with Mr. Tanner, whom unfortunately we know chiefly as the architect (by repute) of the various Post Office buildings. The summary effect of the whole communication is that the Office of Works is a Department as self-satisfied as it is ignorant; that the First Commissioner of Works has got the matter in his hands and means to keep it, apparently from sheer obstinacy and a refusal to give way to the opinions and advice of those who really know what architectural design implies.

Public Buildings and the Office of Works.

LORD WEMYSS, who, in spite of his curious faith that the making of models of buildings would infallibly revive the art of architecture, and who is really to be praised for his perseverance and enthusiasm in the cause, has called attention in trenchant language to an absurdity which we have frequently commented on—that of placing the national public buildings of the country under the charge of an official who is appointed solely for political reasons. It is perhaps rather hard on the present First Commissioner of Works to make a scapegoat of him; for although, as Lord Wemyss says, he was never heard of as an architectural authority before his appointment to his present office, this criticism would apply equally to most of his predecessors, and he has at all events shown more disposition to take competent advice on the subject than some of them, and not done the active mischief which has been brought about by other First Commissioners who were as ignorant but more self-confident. It is the system itself that is absurd. Lord Wemyss intends, on the re-assembling of Parliament, to move for the appointment of a permanent Royal Commission to whom all designs for public buildings, monuments, or "plans for the mutilation of our parks," should be submitted and, if approved, be exhibited in model for public criticism before they are carried out. Whether either the models or the public criticism will help the cause much

may be a question; but it is quite certain, at all events, that architecture has nothing to do with politics, and that questions of public architecture ought to be settled by a permanent tribunal or department of persons appointed for their knowledge of the subject, and not by officials appointed only on political grounds, and to be superseded at every change of Government.

Formal Street Architecture.

ONE of the practical objections to regularity in large schemes of street architecture is very much in evidence at this time of year. Take, for instance, the work of the Adam Brothers in the Adelphi, or Regent-street, and the houses round Regent's Park, the work of John Nash, or any of the great formal blocks of street houses in the Bayswater-road. The landlord or lessee of every alternate house or so is having the exterior of his own particular frontage painted in the colour of his fancy; from the coping to the iron railings in the basement every feature is divided in fair proportions by the conscientious house decorator; thus reducing formal street architecture to an absurdity. Many of these streets are built in stone, but paint is used all the same as the best means of preserving it from the inpurities of the atmosphere. The Quadrant of Regent-street was a striking architectural conception, and the sweeping horizontal lines produce a fine effect even since the basis of the design was swept away. There is no doubt that the arbitrary restrictions imposed upon street architecture allow small chance for any great improvement on the existing state of things. When there is no recognised local building material the chance of harmonious treatment of the streets is very remote. Individual liberty and enterprise is too much respected to suffer such restrictions as the Parisians experienced under Napoleon III. and his Prefect, Baron Haussmann. Under that autocrat Paris gained a certain dignity and completeness that few other cities can boast of; at the loss, it is true, of much that was historically important. Such as is the London Building Act, clauses of which cripple legitimate opportunities in design, in our opinion the Act should recognise the shifting character of a town population and make such provisions as would protect existing formal street architecture from the incongruities which render it absurd, and are a cause of discouragement to new schemes of centralisation and improvement such as are needed in these days when the population of cities increases so rapidly.

London Thoroughfares.

THE streets of London are never free from the excavations and repairs that follow so quickly upon each other, but during August and September most of the principal thoroughfares are given over to the Authorities. Whitehall, the Strand, Piccadilly, the Marylebone-road, and the High-street, Kensington, are only some of the roads that are "up" and more or less impassable. Roads built of whatever material wear out, and need to be relaid, and no time is better suited for doing this than during August and September; but what we hope some day to see is a system in doing these renovations. "The Authorities," whoever they are—and it is very hard to ascertain—are content with the patchwork system of 100 yards of wood block paving here, and 200 yards of asphalt there, and setting the steam-roller to work over the way, with the result that such a thoroughfare as that from the Bank to the Uxbridge-road consists of samples of every kind of road-making. There ought to be one responsible head to introduce an intelligible system carried out with as little inconvenience to the public as is compatible with large schemes. We remember during the Architectural Congress last year more than one speaker calling attention to the historic use of the river as a thoroughfare. Some day it will be recognised that the river can bear a more considerable part in passenger traffic than it now does. If there were a well-organised, speedy, and comfortable service of electric boats, it would be a matter of pleasure as well as of health to use the river instead of the "Tube" or the "Underground."

Labour Statistics.

THE annual Report of the Labour Department of the Board of Trade for the year 1900, which has just been published, is of more than usual interest; for it chronicles the fact that "the year 1900 was the culminating point of the upward movement of wages which began in 1896," and that the general level of wages stood higher at the end of 1900 than in any other year for which statistics exist. In other words, in the last year of the nineteenth century the artisan was in a more flourishing condition than at any other time in the history of this country. But the same Report also states the fact that from the end of 1900 wages began to decrease, and this downward movement is certain, there can be little doubt, to continue for some time to come. As regards the hours of labour, it is interesting to note that one of the most important changes was that in the cabinet trade, there being a reduction of two and a half hours per week, affecting 8,000 cabinet-makers in London. In the building trades there were 9,111 people affected, and a reduction of 8,016 hours for a full week, which represented an average reduction in hours per week of 0·88. Thus, together with an increase in wages, there was a reduction in the hours of labour, all tending to show how much the condition of the working classes has been improved in the century which is now at an end. We wish we could say that the wages had increased and the hours of labour decreased among indoor workers such as clerks and others.

High-Pressure Mains.

THE Committee which was appointed by the London Chamber of Commerce to consider what modifications were desirable in the Board of Trade Rules regarding high-pressure electrical mains have now sent a series of suggestions for altering existing rules to the Board of Trade. The Committee is thoroughly representative of commercial electrical engineering, and so it is naturally anxious that the industry should be hampered by as few restrictions as possible. In the first place, it is suggested that pressures up to 20,000 volts at least should be sanctioned, and they make a strong plea for the use of overhead wires for the transmission of energy, pointing out that overhead work at very high pressures has been in use in America and the Continent for the last ten years, and that great industries have sprung up in consequence which have no counterpart in this country. They also say that they are "strongly of opinion that permission to use overhead wires outside crowded city areas is vital to the commercial success of power schemes over large districts." We were rather surprised to read this, seeing that many members of the Committee are directors of "power schemes over large districts" which have recently begun working. It seems to us rather rash to start large commercial undertakings which can only be successful if the present Board of Trade Rules are altered. We are well aware that power is being distributed in America at voltages above 20,000, but we doubt whether any of these undertakings is really successful, and whether their engineers have guarded against all contingencies. For example, the use of aluminium wires has been attended with indifferent results, their frequent breakages making the service very uncertain. The raising of the pressure of supply of the Niagara Falls Company this year from 11,000 to 22,000 volts has been attended with several untoward incidents. The first thunderstorm earthed the line, and so the traction and lighting systems of Buffalo, where the Pan-American Exhibition was being held, were shut down for nearly an hour. Again, the engineers calculated that a break of 4 ft. 6 in. would be sufficient for the high-tension switches, and so they were all made with this sized break. The break, however, is found insufficient, as the switches arc across, the flames sometimes rising to the ceiling. They are now all being replaced with switches having a 6-ft. break. Further West the engineers frankly confess their inability to guard against all contingencies, and so the transformers are mounted on four-wheeled trucks, which can be run out into the open air the moment they catch fire. Some modifications of our Board of Trade Rules are desirable, but we think that this Committee is asking too much.

The South Transept Window, Westminster Abbey.

IN our "Note" of last week (page 188, *ante*) we adverted to the removal, now in progress, of the modern stained glass from the great rose window in the south transept of Westminster Abbey. We may here mention that the stonework of the window was renewed in 1814 by Thomas Gayfere, the younger, as master mason to the Abbey Church, under the directions of Benjamin Dean Wyatt, who in the previous year had succeeded his father, James Wyatt, as surveyor to the Abbey. In 1847 Thomas Ward and J. H. Nixon inserted the brilliantly-coloured "marigold glass." As the scheme stands at present the three two-light windows and the six lancets beneath will be filled with figures of Fathers of the church, together with coats-of-arms in the cinquefoils, and (in the lancets) of SS. Alban, David, Patrick, Ninian, Aidan, and Augustine of Canterbury, and also with certain historical and local heraldical devices.

Michelangelo's House in Rome.

WE gather that this notable house is threatened with destruction, in order to provide for a widening of the Corso, for the completion of the monument in memory of King Victor Emmanuel II. The house, which was distinguished with a commemorative tablet about forty years ago, was occupied by Michelangelo during the last twenty years of

his life, when, declining the invitations of Duke Cosmo to return to Florence, he preferred to abide in Rome that he might continue the building of St. Peter's, to which he was appointed architect in 1547, and his work in the Vatican Palace. During the interval we mention he completed, in 1550, the monument of Pope Julius II., designed the model (1558) for the dome of St. Peter's, and composed his sonnets in honour of Vittoria Colonna.

Stratheden House, Knightsbridge.

WE hear that the freehold site of Stratheden House, Knightsbridge, latterly the residence of Mr. Mitchell Henry, has been lately purchased for about 85,000*l.* The house, which has been recently demolished, was occupied by Lord Campbell, who there wrote his "Lives of the Lord Chancellors of England," and "Lives of the Chief Justices." He died there, suddenly, in 1861. The ground covers an area of about 4,400 square yards, having a frontage of 128 ft. 6 in. to the main Kensington-road, with a return frontage of 306 ft. 6 in. to Rutland-gardens. In March, 1899, had been accepted the designs of Mr. W. I. Chambers for a block of residential flats, each consisting of fourteen large rooms, with balconies, and having a spacious entrance hall, which it was proposed to build on the site; but the property was withdrawn from sale at auction in June last year after a bid of 89,000*l.*

The Latest Competition Dodge.

AN advertisement recently appeared in our columns to the effect that young architects who were experienced in street architecture were invited to enter into a competition, the conditions of which could be ascertained from the advertiser. The real object of the advertisement is disclosed in the following reply, lithographed copies of which have been sent to us by several indignant "young architects" who had answered the advertisement. We omit name and address :—

"DEAR SIR,—In reply to yours, a competition is advertised by the —— Corporation, limited to architects practising in this town.

It is our intention of joining (*sic*) in the competition, but pressure of work prevents us from dealing with the matter as we should like; therefore we are inviting young architects or others, who have had experience in street buildings, to send in plans, the successful competitor to be appointed joint architect with us.

If you care to enter into this competition we will forward you full particulars, with block plan, on receipt of 1*l.* 1s., which will be returned on receipt of bonâ-fide plans."

We can hardly imagine a more impertinent and insulting proposal to make to architects of ability than to invite them to sell their talents to a man who is evidently conscious that he would have no chance in the competition himself, but who is to pose as a "local architect" by sending in their designs from his office. We must regret that such an advertisement should have found its way into our columns, but there was, of course, nothing on the face of it to indicate its real nature and object.

BATHS AT OLDHAM.—The new baths which have been erected by the Oldham Corporation at Robin Hill, off Rochdale-road, were opened on the 29th ult. The total cost is a little under 10,000*l.* The baths include thirty-six private or slipper baths, with separate entrances and corridors for females and males, and a swimming bath, 75 ft. long by 27 ft. wide, 6 ft. 6 in. in depth, sloping to 3 ft. 6 in. at the other end. The work has been carried out by Mr. Emanuel Whittaker, of Oldham, from the designs of Mr. C. T Taylor, of Oldham.

LETTER FROM PARIS.

THE competition for the Grand Prix de Rome in Architecture, for which the subject was "An American Academy of Arts and Science at Paris to be constructed on a portion of the ground left vacant by the demolished fortifications," was decided as follows :—the Grand Prix de Rome was awarded to M. Hulot, pupil of M. Marcel Lambert; the 1st Second Prix to M. Prevot, pupil of MM. Guadet and Paulin; and a mention to M. Barrias, pupil of M. Pascal, in the place of the 2nd Second Prix, which the jury decided not to award this year.

The historical Château of Saint-Germain is now being restored so completely and in such a manner that those who know the château will hardly recognise the building when the work is terminated. Under the pretext of restoring and completing the whole building in the style of Francis I., all the portion constructed since that epoch, principally by Mansart, has been demolished and the old foundations filled in; a new tower in exact counterpart to those existing on the façade facing the Seine will take the place of the old portion, thus entirely changing the aspect of the château on the façade facing the square.

As already mentioned in our columns, the art director of the Manufacture Nationale de Sèvres has in hand ready for execution the designs and details for the porcelain tower which is to be erected on the plateau of Saint Cloud. The tower will be 150 ft. in height, and will consist of a polygonal base which will be decorated on each face by the work of one or another of the best known Parisian sculptors, supporting a circular tower decorated with elegant columns, the whole to be constructed of ceramic ware with an outer covering of porcelain. An iron staircase in the interior will lead to the summit of the tower, crowned by a shapely dome surmounted by a decorative finial and surrounded by figures of animals. The whole of the work will be executed by the manufactory of Sèvres: the general tone will be mother-of-pearl, heightened here and there by glints of topaz, turquoise, and coral.

A small proportion only of the exhibitors at the 1900 Exhibition have received the medals awarded to them, medals engraved by M. Chaplain, and of which there are about 60,000. As each medal will have to pass through the Mint a second time to receive the name, &c., of the exhibitor, and as only about one-tenth of the medals have been struck up to this time, exhibitors must have patience for some months to come.

The Institut has awarded the Prix Léon Faucher, of the value of 120*l.*, to M. Flour de Saint-Genis, late Conservateur des Hypothéques, for his work entitled "The Present Situation and the Future Outlook of Large and Small Landed and Other Property in France." The Académie des Beaux-Arts has awarded the Prix Bailly, value 60*l.*, destined to recompense the architect of an important and interesting work, to M. Malgras Delmas, architect, of Saint-Quentin, for his Palais de Fervaques in that town. The Prix Bordin, value 120*l.*, for which the subject of competition was "Characterise the talents of the French painters who helped to make illustrious the first half of the nineteenth century," is awarded to M. Eugène Guillon, Paris.

The work of enlarging the Palais de la Bourse at Paris is now well in hand under the direction of M. Cavel, Architect to the city of Paris.

A sum of 4,000*l.* has been voted for the continuation of the restoration of the church of St. Eustache, near the Halles at Paris.

The Minister of Public Instruction and of Fine Arts has just appointed M. Emile Bertone, late Prix de Rome, on an archæological mission in Greece and Turkey.

A new museum, destined to contain exhibits of the best of the various works sent in by the students of the Ecole des Beaux-Arts for the school competitions and the Prix de Rome, is being prepared by M. Louis Bernier, architect, in the premises of the old and once well-known official studio André of the Ecole, vacant since 1892.

It is proposed to construct a new bridge over the Seine between the Pont des Arts and the Pont Neuf, almost in front of the Louvre, where the prolongation of the Rue de Rennes will join the river.

The Municipal Council has granted the credits necessary for the isolation and restoration of the old Collége de Medecine, called the Hôtel Colbert, an interesting building composed of two portions of very pure work of the fifteenth and eighteenth centuries. The owner of the old Hôtel des Evêques de Sens has offered to pass over the building to the Municipality for the sum of 60,000*l.*; it is to be hoped that this offer will be accepted, for it will save from destruction the most curious and interesting specimen of mediæval architecture existing at Paris, next to that of the Hotel de Cluny.

The question of the Cirque des Champs Elysées is at last decided, and a contract has been signed with M. Leoncavallo by which the Municipality hands over the ground to this gentleman for the purpose of constructing thereon an international theatre of opera.

It has been decided that the ventilation of the tunnels of the new Metropolitan Railway leaves much to be desired, and the question of ventilation by means of openings through the vaulting into the streets, and the covering and decoration of these openings, is much discussed.

The work of arranging and decorating various new rooms at the Louvre Museum is constantly in hand. One of the latest rooms, now nearly completed, is that close to the last of the rooms for the exhibition of engravings and drawings. This room is destined to receive the magnificent and valuable collection of ecclesiastical gold and silversmiths' work of the middle ages, given to the museum by the late Baron Adolphe de Rothschild, and valued at several millions of francs. The donor added to his gift the sum of 10,000*l.* for the purpose of preparing a room worthy of the collection, and a portion of this money has been spent on a magnificent ceiling in Venetian style and some very rich wainscotting for the walls of this small room.

The fourth exhibition of decorative panels, sketches, studies and water colours executed by the artists of the Manufacture Nationale des Gobelins, is now being held at the manufactory. Several tapestries by M. Emile Maloisel, "The Herd," "The Shepherd," and "Morning Mist," are worthy of attention amongst the exhibits. A portrait by M. Lallemand, and several original etchings on holland by M. Damazy, are much admired.

The celebrated laurel-crowned bust of Victor Hugo, one of the finest of the works of David d'Angers, has just been presented to the Institut de France by the family of the poet. This bust was executed by David d'Angers in 1842, after reading the "Rhine" of Victor Hugo and as a token of his great admiration for the poet. The original clay model of this bust may be seen amongst the works of David at the museum at Angers; a plaster cast was given by David himself to his friend Victor Pavie, and still exists; the third and last repetition of the work is that in bronze to be seen in the museum at Besançon, the birthplace of Victor Hugo.

The memory of the celebrated artist workman, André Charles Boulle, who was born at Paris in 1642, and whose personal talent in the work of enriched furniture, bronze, copper, ivory, and other materials has made his name famous, will be perpetuated by a monument to be erected in the Faubourg Saint-Antoine, the centre of the furniture workshops at Paris. The design has been entrusted to a young sculptor, M. Edouard Jacques, and the work will represent a workman in his ordinary working clothes, his tools placed on the ground near him, in the act of raising a young boy who is lifting his cap in respect towards the bust of Boulle. Louis XIV., who was a great admirer of Boulle, gave him a special mark of his favour in allowing him to take up his quarters in the buildings of the Louvre as cabinet-maker, architect, and engraver of the Royal seals to the King.

The monument to the celebrated landscape painter, Louis Français, was inaugurated on August 18 at Plombières-les-Bains. The work is due to M. E. Peynot, sculptor, and MM. Godefroy and Curvat, architects. A well-designed and lofty pedestal, placed in the centre of a hemicycle of Vosges granite, carries the bust of Français; on the front of the pedestal is a draped figure of a young woman holding a branch of oak towards the master; at her feet a figure representing the rustic Muse, decorated with garlands of wild roses, plays the pipe of Pan.

The work of partially restoring and rearranging the Palais of the Luxembourg is rapidly going on under the care of the architect, M. Scellier de Gisors. A large scaffolding at present masks the Pavillon de l'Horloge on

the chief façade of the building, for the purpose of placing in position the four ancient allegorical statues modelled by Pradier, but which, being executed in soft stone, did not withstand the ravages of the weather, and have now been sculptured anew in hard stone by M. Crauk.

A fine piece of work for an epergne or table ornament has just been completed at the manufactory of Sèvres by M. Raoul Larche, and consists of a central piece entitled "The Year," represented by the figure of a young woman clothed in long drapery, held up and surrounded by a number of figures of children, representing the "Days." The four angles of the piece consist of figures representing the "Seasons" and "Months." Another piece of work now being completed at Sèvres is the set of panels for the decoration of the refreshment-room of the Palais Bourbon. The panels are formed of about fifty squares, and are entitled the Four Seasons; Spring and Summer being designed by M. Alfred Boucher, Winter and Autumn by M. Constant Roux.

AUCH.

WE imagine that there must be few interiors more simply beautiful, and that convey a more lasting impression of delight to the mind, than does the cathedral at Auch, which, in contrast with the hurry and bustle of the streets outside, seems to breathe nothing but a calm peace; but as these lines are written for the benefit and encouragement of the student, we must, instead of indulging in rhapsodies, confine our efforts to a description of the main points most likely to interest and instruct him. These are (*a*) the severe and simple treatment of what, as a rule, has the fault of *abandon* and ultra-elaboration—its Late Flamboyant work; (*b*) the gorgeous colouring and quaint mannerisms of its late painted glass; and (*c*) the wonderful beauty and excellence of its plan, as well as the splendour and variety of detail of every part of its stalls and subsellia, second only, if at all, to those of Amiens and Ulm, but equal to either in completeness of scheme and entire freedom from mutilation—an unusual condition, which must be taken to heart. Easily reached by railway from Toulouse, and commanding lovely views of the Pyrenees, it is a city of amply sufficient attraction to the general tourist, but to the antiquary and the art-lover it should approve itself as a far more attractive and delightful hunting ground than, thus far, it seems to have become. The great Revolution has undoubtedly left sad marks behind, yet one must take comfort to find so little damage done during that unhappy epoch. A singular lesson of the ways of the later masons may be learned on the south side of the cathedral, where, as at the west front of Rouen, work built up for the carver to work out his imagination upon still remains *en bloc*. The old escutcheons of dead and gone families have been ruthlessly torn from their moorings, and history suffers in consequence, but the building is rather a gainer, from the fact that their places have been filled up with plaques of beautiful specimens of Pyrenean marbles.

Auch is the principal town in the Department of Gers, having some 14,000 inhabitants, and there are many old houses of interest still remaining in its streets to the north of the cathedral, which, with the city, is placed on a high platform sloping away to the west, and from which long flights of steps lead to the sandy plain below to the east of the building. The great Antoine Mégret, Baron d'Etigny, who died all too young, and whose works abound at Bagnères de Luchon and other places in the adjoining country, as a great promoter of tree-culture, laid out the Cours d'Etigny here, from which, in clear weather, there is a fine view of a considerable part of the Pyrenean range. There is a poor statue here raised to his memory, very inferior as a portrait, and still more so as a work of art, to that at Luchon. As the capital of the Ausci, and in later times of the Comté d'Armagnac, the city has much historical interest, and, commercially, by the brandy of Armagnac (preferred by many to that of Cognac), which is produced hereabouts and forms a great article of trade. The place may also be visited well from Pau, eighty-nine miles off by rail, but the route viâ Toulouse is much shorter, and to the student of old glass is instructive as forming a good example by way of comparison, both places abounding in good work. This railway passes through Gimont-Cahuz*ac*, probably the cradle of an old Gascon family, now to be found in England — Cus*ac* or Cahus*ac* (?), the affix "ac" being very common hereabouts. There is not much to attract on the journey, to which the slowly-flowing, muddy, and shallow stream of the Gers contributes little or nothing, so that, when reached, the charm of the place is all the more refreshing. "La métropole de la troisième Aquitaine fut invariablement soumise à Saint Pierre de Rome." It is the seat of an archbishopric, no less than eleven of the occupants of which have received the honours of the Cardinalate, and of whom the 88th, François Guillaume, Cardinal de Clermont-Lodève, invited Arnaud de Moles to undertake the eighteen large windows in the Chevet. Dominique de Vic, the 96th, supplied the three rose windows at north, south, and west; the 97th, Henri II. de Lamothe-Houdancourt, built the western towers; and the 99th, Augustin de Maupeon, founded the Hospital of Auch. The Classic west front, with two towers of the Corinthian Order and a large western porch or narthex, has a peculiarly Italian air about it. There is a charming sense of spaciousness about the interior, the arches of which have no capitals to receive their mouldings, but these, bolder than usual in similar work, pay out gracefully upon the filleted drums of the piers. The bases are elaborate, somewhat high from the floor-line, and with interesting interpenetrations. The triforia, three-centred in form, with plain, straight mullions and no traceries, have elegant open screens for protecting their gangways, with carved fronts of apparently somewhat later date. The vaulting is quadripartite, with circular bosses, and was finally completed in the time of Louis XIII., the western towers forty-five years later. The tracery to the windows is peculiar, very free in line, and in general composition most graceful, recalling some of those at Notre Dame de Brou, at Bourg, but evidently the work of an original genius who scorned to be a copyist.

The crypts and tombs are well worthy of careful study. The bells are hung in the north, but the *bourdon* only in the south tower.

The stained glass, 1507-13, is the work of a Saxon artist, one Arnaud de Moles, and there are several windows of this unique series reproduced in Mr. Westlake's admirable book on the subject, but no publication can give the wonder of its colour effect. He says:—"A tradition that his eyes were put out that he might not repeat his glorious work elsewhere is, fortunately, without any historical evidence or probability, for, as we have seen, there are works of his elsewhere in the neighbourhood, viz., at Fleurance and at the Abbey of Simorre." These windows occur in the eastern chapels, of which are the following:—Du Purgatoire, de Saint-Cœur de Marie, de Notre Dame de Pitié, de Saint-Anne, de Sainte-Catherine, du Saint-Sacrament, de Saint-Louis, de la Compassion, de l'Ascension, de Notre Dame d'Auch, which before 1860 had been dedicated to the Holy Spirit. The subjects, very rich in colour and varied in composition, include apostles, prophets, bishops, sibyls, &c., and abound in grisaille work, arabesques, heraldries, legends, &c. There is a quaint humour about the whole work which, compared with that of the same date in the country, is very naïve and refreshing.

The stalls, 113 in number (1520-46), constructed throughout in the "kindest" of oak, and elaborately detailed in every part, represent, by large single figures taken from Jewish, Christian, and Pagan sources, a wide field of history. There are no less than fifty life-size figures, to say nothing of subsidiary subjects. The whole work has been marvellously preserved by constant rubbing, apparently with oil, and their present appearance is well and truthfully described by Viollet-le-Duc as having all the effect of being wrought in *cornelian*, so delicate and transparent do they appear. The gangways are wisely placed so as to flank the arch-piers. There is a lofty screen to west of the stalls, with choir, organ, and rood over it, the stalls forming a part of it below. The design of this organ is in harmony with the screen itself, and there is yet another large and very fine organ at the west end of nave, evidently of the same age as the western towers. Much of the rood is apparently modern, but in good taste, with six large angels holding trumpets below it. One very excellent point in the arrangement of the stalls is brought out by the agreeable break, octagonal on plan, round the piers, which prevents, in a natural way, the long straight line usually found in canopies over stalls; every portion of which here has received a full measure of attention and care, both as regards utility and beauty. The pose and the draperies of the figure sculpture, the treatment of traceries, pinnacles, crockets, finials, and grotesques, misericordes and elbows, can hardly be surpassed. They are certainly the best preserved stalls in France; that of the Archbishop is on the south side of the screen doors. To sum up the whole, the one word *thoughtfulness* seems to do so exactly, and neither the whole nor the parts seem to escape it.

The first bishop of Auch was Citére (A.D. 313) The first archbishop and fifty-fourth bishop was Bernard (A.D. 946). Four times demolished and renewed, the church was refounded in 1486 (*temp.* Charles VIII.), and finally completed (*temp.* Louis XIV.) save for a few modern details comparatively unimportant.

The height of the interior is 87 ft. English, and the length of the interior 102 m. 86, inclusive of the west porch, and the width 34 m. 95. There are twenty-one chapels—ten of them to the west of the crossing, and eleven at the chevet. The nave has five bays and the choir four bays, the whole terminating in a five-sided apse; the easternmost bays of the choir are much narrower than the three bays to the west of it. The building was consecrated February 12, 1548, under the name of "Nativity of the B.V.M."

There are no sham flowers, trumpery fittings, or tawdry images here to disturb the beauty of the delightfully delicate brown stone of which it is built. Truly a rare condition of thing. In conclusion, let me advise the student to choose a cool month for visiting this interesting old city, or even to repeat my own experience of July heat and a plague of flies rather than omit to see it altogether.

E. SWINFEN HARRIS, F.R.I.B.A.

THE ARCHITECTURAL ASSOCIATION.

IN the printed curricula of the Architectural Association for 1901-1902 some further particulars are given of the arrangements made for the starting of the new day classes. The fee for the full course is 12 guineas per term, or 35 guineas per annum; or, for the lectures only, 2 guineas per term, or 5 guineas per annum, for either the history or construction course. After payment of the fees for the first year's course, students will be eligible for election as ordinary members of the Architectural Association without payment of the usual entrance fee of 2 guineas, and as ordinary members they would be eligible to compete for the prizes and studentships.

The following subjects are included in the curriculum:—*First year's course.—The studio:* The use of instruments and scales. Free-hand drawing. Elementary perspective. Orders of Classic architecture. Elements of the various styles of architecture. Principles of mechanics. Elementary construction. Sketching and measuring details and portions of existing buildings. History of architecture, thirty-six lectures (illustrated by visits to buildings and museums.) Elementary construction and materials, thirty-six lectures (illustrated by visits to workshops and buildings in progress).

Work in the studio will be carried on daily, varied by visits to buildings, galleries, and works in progress as will be arranged from time to time. The lectures will be delivered by the master on two afternoons in the week. There will be seventy-two lectures, thirty-six on the history of architecture and thirty-six on elementary construction and materials. Twelve on each subject in the term.

The general idea of the lectures on the history of architecture is as follows:—

1st term. Early history of architecture in Egypt, Greece, and Italy.

2nd term. Continuation of the subject, with development of Byzantine from Roman work to Romanesque and the commencement of Gothic.

3rd term. Outline of mediæval and Renaissance architecture, with a sketch of the subsequent history of the art up to the present time.

The scheme of the lectures on elementary construction and materials is as follows:—

1st term. Elementary course on foundations, brickwork, and masonry.

2nd term. Outline of timber and metal construction.

3rd term. Some account of roof coverings, plumbing, plastering, joinery, and finishing.

Every student will be expected to take up a course of reading under the direction of the master, and will be required to refer to works on each subject concurrently with the lectures on the same, and for this purpose the studio library will be available. The master will direct students as to their vacation studies, and a due proportion of outdoor work will be expected of all during the summer. The character of the instruction will be of a strictly preparatory nature, adapted to pupils proposing to be articled and enter the office of an architect. The aim of the master will be to direct the student's studies towards the knowledge of all that is accepted as the best in ancient and modern architecture.

Second year's course.—Continuation of the subjects forming the first year's course. Advanced perspective and sciography. Descriptive and applied geometry and graphic statics. Principles of architectural design.

In reference to the evening school, the work will be carried on by practically the same lecturers and instructors who assisted last year.

As to the general meetings of the Association, the opening address by the President, Mr. W. H. Seth-Smith, and the distribution of prizes will take place on the 11th prox., and the conversazione will be held at the Royal Institute of Painters in Water Colours, Piccadilly, on the 25th prox. The following is the programme for the succeeding meetings :—

November 1, Mr. A. Wood, M.A., F.S.A., on "Cambridge in Early and Mediæval Times ;" November 15, Mr. Max Clarke on "The Sanitation of a Country House ;" November 29, Mr. Francis Bond, M.A., on "Capitals ;" December 13, Mr. J. E. Forbes on "Travelling Students' Notes ;" January 3, Mr. J. A. Gotch on "The Development of Domestic Architecture from the Twelfth to the Eighteenth Century ;" January 17, Mr. T. C. Cunnington on "Architectural and Constructional Engineering ;" January 30, Mr. C. Harrison Townsend on "'Originality' in Architectural Design ;" February 14, Miss Ethel Charles on "A Plea for Women Practising Architecture ;" March 7, Mr. J. Miller on "The Glasgow Exhibition ;" March 21, Mr. W. H. Lever on "The Dwellings Erected at Port Sunlight and Thornton Hough ;" April 11, Mr. W. D. Caröe on "The Preservation of Ancient Buildings ;" April 25, Mr. E. A. Gruning on "Arbitrations ;" and May 9, papers by Mr. Owen Fleming on "Artisans' Dwellings from the Municipal Point of View," and Mr. Louis Ambler on "Artisans' Dwellings from the Private Point of View."

THE SANITARY INSPECTORS' ASSOCIATION :

AUTUMN CONFERENCE AND MEETING.

THE proceedings in connexion with the autumn meeting and conference of the Sanitary Inspectors' Association opened on Thursday last week at Carpenters' Hall, E.C. At a general meeting, Archdeacon Sinclair was elected an honorary member.

Sir Hugh Gilzean Reid, the President of the Association, occupied the chair at the Conference which followed. In his opening remarks he expressed satisfaction that the objects of the Association, to raise the standard of efficiency of its members and to afford all reasonable protection to their interests, had been justified. He referred particularly to the value of the Bill drafted for securing to Medical Officers of Health and Sanitary Inspectors full security in their respective positions and adequate retiring allowances. When this measure passed—as he was sure it would—stability to their occupation would be assured. He also regarded the proposal to appoint a Minister of Health as an excellent one, and, although we were rather slow in moving in this country, he did not think much delay would occur before such a reform as this were introduced.

Sir Alexander Binnie, C.E., Chief Engineer to the London County Council, followed with a description of the London main drainage system. He remarked that some idea of the difficulty of draining London may be gathered from the fact that out of 121 square miles within the county at least 10 per cent., or 12 square miles, are situated below the high-water level of the Thames. Having described the features and course taken by the main sewers, and pointed out that up to 1888 the sewage of the metropolis was discharged into the Thames at Barking and Crossness, Sir Alexander mentioned that it was on the advice of his predecessor in office, Sir Joseph Bazelgette, that a series of precipitation works at the two outfalls were commenced. "The principle adopted in these works is," he continued, "that of a chemical precipitation, four to five grains of lime and one grain of sulphate of iron per gallon being added to the crude sewage. It is then admitted into precipitation channels, from which the effluent water passes into the river. The sludge so deposited, after a further period of sedimentation, is pumped into ships and deposited in the sea twenty miles below the Nore. These works as originally designed were estimated to deal with 150 million gallons of crude sewage a day and 3,000 tons of sludge per day. The total quantity of sewage now dealt with is about 132 million gallons a day at Barking and 98 million gallons a day at Crossness, a total of over 230 million gallons. The quantity of sludge sent to sea is over two million tons per annum, containing a little less than 10 per cent. of solid matter. There are six ships of 1,800 tons gross and 1,000 tons net capacity engaged in this work, and in the year 1900 their aggregate number of voyages totalled a distance of 236,000 miles. The capital cost of works of precipitation only, including ships, was 1,079,000*l.*, and the annual cost of working is about 161,000*l.* The river, which previous to 1890 was exceedingly foul in the neighbourhood of the outfalls, with large masses of black, floating matter, is now comparatively free from all noticeable pollution. . . . Within the last twenty years, however, principally owing to the valuable series of experiments carried out at Massachusetts, in the United States, we have been brought face to face with the fact that the elimination of dead effete matter is largely, if not entirely, due to the action of various microbe organisms. These organisms, acting for a longer or shorter period, appear to be able to reduce dead organic matter into an inert and harmless condition. I have studied the question very carefully for the past eleven or twelve years, and the conclusions at which I have arrived may be briefly summed up as follows :—That, as far as possible, all solid and floating matter should be removed from the sewage by mechanical means ; for, although undoubtedly these solid and suspended matters would ultimately be destroyed by the micro-organisms, yet the time required would be too long to admit of its application in ordinary cases. Second, that as far as possible, such minute suspended matter still remaining in the sewage should be reduced by the aid of those organisms with which we are well acquainted, from the solid to the fluid state. This, to my mind, is the first step and the first lesson which we have clearly learned from our investigations into this wonderfully interesting subject. The effluent sewage containing, then, a large proportion of dissolved organic matter is in a condition to be further treated either by intermittent filtration in what are called contact beds, or by some other means being brought into contact with those organisms which have the mysterious power of reducing these dissolved organic substances, which, if left to themselve, would putrify and be the cause of offensive smells, if not of dangerous consequences. In the case of intermittent filtration and contact beds considerable difficulty arises from the presence in the effluent, along with the dissolved organic matter, of certain mineral substances in a minute state of subdivision, derived, no doubt, from the washing of the streets. These latter substances, of course, cannot be acted upon by any species of bacteria ; consequently, in course of time, they tend to clog up the filter-beds themselves. But intermittent filtration and contact beds is not the only mode of treating the sewage effluent which has been deprived of its grosser and more palpable organic matters. It is a well-known fact that if the sewage effluent be poured into a sufficiently large volume of otherwise comparatively pure water, the dissolved organic matter contained in it disappears with remarkable rapidity ; in other words, the contact bed, instead of being composed of coke or other solid matter, is formed of water, in which the mysterious process of the reduction of the dissolved solids is carried on. . . ."

In the discussion which followed, Mr. Grigg, the Chairman of the Council, said the immensity of the problem of the sewage disposal of London awed those who heard Sir Alexander Binnie's figures.

Mr. Addiscott (Plymouth) inquired whether there was not a great manurial value in the sludge, which would render it profitable for disposal to farmers ?

Mr. Humphreys (Reigate) asked how London stood with regard to trade refuse being allowed to pass into the sewers ?

Mr. Lindley (Batley) mentioned that in his town they had come to the conclusion that bacterial filtration was the best plan.

Mr. McMahon (Torquay) explained that at Torquay the sewage was carried into the English Channel by an intercepting sewer, 100 ft. below the sea level.

Mr. Young (Battersea) declared that a great many of the present difficulties might be remedied by increasing the size of the flushing tanks from two to three gallons in residences. He ventured to think that this might be done if the water supply were municipalised.

Sir Alexander Binnie, replying to questions, said it was true that there was originally a manurial value in the sludge, but after treatment it did not seem to have any attractions for farmers. In fact, at one time the latter, rather than pay for the sludge, required the Public Authority to pay them 1s. a ton for removal. Oil refineries seriously interfered with the sewers by the quantity of refuse they discharged into them.

Mr. W. H. Grigg then read a paper prepared by Professor Frank Clowes, Chemical Adviser to the London County Council, on "The General and Experimental Treatment of the Sewage of the Metropolis at the Outfalls of the London County Council." For many years (he stated) the London County Council had conducted experiments upon a small portion of their sewage flow, with the object of ascertaining to what extent the quality of the sewage effluent discharged into the river could be improved by substituting bacterial treatment for treatment by chemical sedimentation. The effluent from chemical sedimentation contains much dissolved impurity, which rapidly undergoes offensive changes at summer heat, and which deprives the river water of much of its dissolved oxygen. It may be stated generally that the effluent resulting from the bacterial treatment of the screened sewage successively in a septic tank and in intermittently fed coke-beds is entirely free from this objection. The Professor then described the result of experimental bacterial treatment in coke-beds, mentioning that raw sewage, which had been deprived of its larger particles by screening it through coarse gratings, lost practically the whole of its suspended matter by remaining in such a coke bacteria-bed for two or three hours. It appeared that the suspended particles of fæcal matter underwent liquefaction by the bacteria, and did not collect upon the surface of the coke. The sand and grit and finer mud, arising mainly from the wear of road surfaces, however, were deposited upon the coke surfaces, and gradually reduced the capacity of the coke-bed. Hair, fibrous matter, and woody fibre, derived from the wear of wooden street pavements, and particles of chaff and straw, mainly derived from the dejecta of horses employed in the street traffic, were also deposited upon the coke surfaces and gradually choke the coke-bed. These substances, which consisted mainly of cellulose, were apparently only acted upon by bacteria with extreme slowness under these conditions. They arrived, however, in a water-logged condition, and rapidly settled down from the sewage if its rate of flow was reduced.

The total number of bacteria underwent some reduction in the coke-beds, but the different kinds of bacteria which were present in the sewage were still represented in the effluents. The introduction of such a sewage effluent into the Lower Thames appears (continued Professor Clowes) to be unobjectionable. The river water at this part is uniformly muddy ; it is always brackish and frequently salt to taste, owing to the presence of tidal sea water. It is, therefore, not capable of being used for drinking purposes, and the introduction of bacteria could not lead to danger arising from the river water being drunk. The effluent will certainly cause no deposit upon the river-bed, and will ordinarily tend to render the muddy river water more clear by mixing with it. No offensive smell can be emitted by the effluent as it is discharged, and the bacteria which it contains slowly and inoffensively remove the remaining

dissolved organic matter from the effluent after it has been introduced into the river. The effluent will be suitable for the maintenance in the river of healthy fish-life.

Recent experiments have shown that if the roughly-screened sewage is made to pass with continuous flow through a settling tank, with constant surface level, and the flow is so regulated that a unit of sewage takes about five hours to pass through the tank, a fairly clear effluent suitable for coke-bed treatment is obtained. Under these conditions about 25 per cent. of the sediment or "sludge" in the settling tank disappears by bacterial action.

Sir James Crichton Browne then read a paper dealing with tuberculosis, and urged that the disease should be made compulsorily notifiable. He recognised that a great deal of good was already being done by a system of voluntary notification in some towns. Much depended upon the conscientious performance of their duty by sanitary inspectors to secure cleanly and sanitary milkshops and cowsheds which, he pointed out, could by neglect be made the source of much disease. The learned gentleman also dealt with Dr. Koch's views on the disputed point as to the contagion following bovine tuberculosis, and concluded by appealing to sanitary inspectors to use their best endeavours to rid the land of the worst scourge of humanity.

After a short discussion, a resolution was, on the motion of the President, adopted calling upon the Government to appoint a commission to inquire into the question of the contagiousness of bovine tuberculosis.

Mr. E. Tidman, the hon. secretary, mentioned that he had undertaken to read a paper analysing and criticising the new by-laws of the London County Council dealing with house drainage. He had been unable, through pressure of other work, to complete his paper, but he indicated in a general way the defects which he detected in the by-laws.

A paper, prepared by Mr. Prim, late resident engineer of the Houses of Parliament, was brought up by Mr. Tidman. Mr. Prim dealt exhaustively with the system employed for ventilating, heating, cooling, draining, and lighting the legislative chambers. He pointed out that the total length of the building is 940 ft.; its principal front, that facing the river, being 880 ft. in length, 680 ft. of which forms the terrace. The enclosed area upon which it stands—viz., exclusive of Old Palace-yard, but including Westminster Hall—occupies 7¾ acres. The debating-chamber of the House of Peers has a floor area of 4,050 ft., while that of the House of Commons has only 3,060 ft.

The total number of persons occupying the chamber during the division which took place after the debate on the second reading of the Government of Ireland Bill, in 1886, was 905, and as the total capacity of the chamber is 165,000 cubic feet, only 182 cubic feet was on that occasion apportioned to each individual; but as really one million and a quarter cubic feet of air was passed through the chamber per hour, thereby changing the air every 8¼ minutes, the supply of air per individual was, at that rate, of 1,326 cubic feet per hour, or 22 cubic feet per minute. The minimum temperature of the chamber was 63 degrees, and the maximum 67 degrees during a sitting of nine hours' duration, while the out-door temperature ranged from 65 degrees at the commencement of the sitting to 59 degrees at the rising of the House. When, however, the out-of-doors temperature is high then an increased temperature is maintained indoors, whereby a chill consequent on the sudden fall in temperature of some 20 deg. or 25 deg. on entering the building may be avoided. During protracted sittings the temperature of the air is gradually raised as morning approaches, want of rest and fatigue causing a slower circulation, and consequently chillness. Those parties forming the relief parties, and who have had a night's rest, a bath, a breakfast, and possibly a short walk, on arriving at the House at 8 a.m., do not generally approve of the then temperature, but they are not entitled to the same consideration as those who have struggled through a long night, rendered more tiresome by frequent and, on such occasions, almost useless divisions. The volume of air supplied to the Debating Chamber is regulated according to the number of persons present, the minimum quantity being 20 cubic feet per minute for each individual, but on occasions of exceptional crowding and excitement as much as 30,000 cubic feet of air per minute have been passed through the chamber, or not less than 33 cubic feet per head, assuming a full attendance. The principal source from whence the air supply is drawn is from the river front of the building, where, from thirty-five openings, air ducts are distributed for the service of the libraries, committee-rooms, Commons refreshment and smoking rooms, several offices, and the Debating Chamber of the House of Commons. The air for the Debating Chamber is drawn by the action of a fan along a gallery, where, on passing through jets of water converted into fine spray or mist, mechanical impurities, such as soot or dust, are washed out; in hot weather, in addition to the cooling effects of these sprays, the air is also brought into contact with large blocks of ice, and is then drawn through a fan or propeller, the speed of which is regulated according to the external temperature, as well as the number of persons occupying the chamber. This fan is driven by means of an endless rope from a steam engine, which is placed at a distance so as to avoid both noise and smell, the not unusual accompaniments of an engine. After leaving the fan, the air which is now being propelled passes through a screen of large area; this screen, which is composed of scrim or canvas of a light, open, and fluffy texture, arrests the further progress of any dust or smut that may have escaped the washing process. The air in its onward course next arrives at the filter, when, should the weather be foggy, the airways used in clear weather are closed, and the whole of the incoming air, the presence of which is increased by accelerating the speed of the propeller, is forced successively through two layers of cotton wool, each layer having a thickness of 3 in. and an area of 1,000 superficial feet. Having passed through this filtering medium during thick weather, and around it when no fog exists, the air ascends through gratings in the roof of the vault and enters the warming chamber overhead.

The warming is effected by means of steam conveyed through small pipes upon which zinc plates are soldered, and are called batteries. The principle of the battery enables a large quantity of air to be raised in temperature to a moderate degree, while the promptitude with which the heat may be checked whenever a sudden influx of members takes place, either on the call of a division or on the rising of a popular speaker, renders the apparatus superior to any other system. Following the onward course of the incoming air, after receiving the necessary amount of warmth, it ascends into the equalising chamber, where heated currents arising direct from the batteries become absorbed by the general body of the air, which assumes an equable temperature throughout before entering the Debating Chamber overhead, into which it passes.

The floor of the chamber is composed of perforated cast-iron plates, covered with an open-meshed matting of whipcord; there are also numerous openings in the walls and fittings round the chamber. In order to avoid any chilling effect from the upward movement of the incoming air about the Members' feet, that portion of the floor immediately in front of the benches is composed of wood covered by rugs. The area of opening in the floor, and panels around the Chamber, is so large that no perceptible draught is felt. Special inlets for air are provided for the galleries all round the Chamber. The vitiated air is extracted through the ceiling, which is composed of a number of ornamental panels slightly raised above their framings so as to permit the outgoing air to pass freely away. Sixty-four of the panels in the centre of the ceiling are of glass, through which the light from an equal number of gas-burners overhead illuminates the chamber. The extraction-flues from these burners alone act as powerful ventilators, but in addition to these are two ventilating up-cast shafts, the principal one being in the Clock Tower, at the base of which a fire is maintained day and night throughout the year.

The ventilation of the House of Peers is effected entirely on the extraction system, by which the air from two adjacent courtyards is drawn through water sprays, canvas screens, and steam-heating batteries, as already described, after which the air ascends through an open perforated floor, covered with a hair cloth carpet, into the Debating Chamber, passes from thence through the ornamental fretwork of the ceiling, and is extracted by furnaces placed at the base of up-cast shafts, the principal one forming one of the angle turrets of the Victoria Tower.

The ventilation of the Commons dining-rooms, the serving-room, the kitchen, the principal smoking-room, and the bathroom is effected by fans or air propellers driven electrically.

The heating medium is steam, which is supplied from four boilers, each 28 ft. in length by 7 ft. in diameter, and having two furnaces. The cooling of the air is effected both by placing blocks of ice in the "intake," or gallery, through which the air is drawn, or by fine sprays of cold water, which, playing upon canvas screens, presents a large surface of cooling medium to the passing air, tending not only to cool, but also to cleanse and moisten it.

Dealing with the drainage system, Mr. Prim pointed out that the whole of the sewage, together with the drainage from the roofs and courtyards, which, on a rainfall of one-tenth of an inch, represents nearly 20,000 gallons, or 88 tons, gravitates through iron pipes into three reservoirs, called "ejectors," having a combined capacity of 1,200 gallons. As these "ejectors" become full in their turn, a pressure of air, generally of about 12 lbs. on the square inch, forces the sewage into the metropolitan sewer. The air employed for this purpose is supplied from compressors actuated by steam-engines placed at a considerable distance from these ejectors.

As to lighting, at present the number of electric lamps in use within the building is, he said, equivalent to upwards of 5,000 of 8 candle-power; but before the completion of the installation a further 3,000 lamps will be required. The signal light on the Clock Tower is illuminated by gas, and is one of Wigham's patent apparatus, similar in design to those used by the Board of Irish Lights for light-house illumination.

At the conclusion of the reading of papers the usual votes of thanks were passed.

COMPETITIONS.

ADDITIONS AND ALTERATIONS TO WORKHOUSE, HEREFORD.—The two twenty-five guinea premiums in the competition for the additions and alterations to this workhouse, which additions include new infirmary buildings and administration block, have been awarded to Mr. E. H. Lingen Barker, of Hereford, and Messrs. Wells & Anderson, of Swansea, both of whom have London offices. The other competitors were Mr. S. H. Eachus, of Wolverhampton, Mr. Arthur Marshall, of Nottingham, and Mr. R. I. McBeatte, of Manchester.

BOOKS RECEIVED.

RIPON, THE CATHEDRAL AND SEE. By Cecil Hallett, B.A. (London: George Bell & Sons)

SHELTER AND DISINFECTING STATION, HACKNEY.—From the Report by Dr. J. King Warry, M.D., on the sanitary condition of the Hackney district, we learn that in the month of July, 1900, the Local Government Board was asked by the local authority of Hackney to give their consent to a loan being raised for the erection of a shelter, a new disinfecting station, and a caretaker's lodge. A local inquiry was held at the Hackney Town Hall, and the consent of the Board was given. The shelter consists of four entirely separated and furnished tenements of two rooms, with water-closet and bathroom to each. The disinfecting station is of good size, and the chamber receiving the infected goods is completely cut off from the chamber receiving the disinfected articles. It is provided with two Alliot & Paton's improved Washington Lyon's high-pressure steam disinfectors. In connection with the non-infected chamber is a small laundry, fitted with a washing-machine, a hydro (both to be worked by means of an electric motor), troughs, &c., and an ironing-room fitted with electric heated irons; also a drying-room. It was thought desirable to include in this block shelter for the vans used in the transport of articles to and from the station, and a two-stalled stable and loose box for the horses employed. It is intended to provide the disinfecting station with steam from the boilers of the dust destructor; but to provide against the contingency of a failure on the part of the destructor, an upright boiler has been provided in connexion with the disinfecting apparatus. The opportunity was also seized to erect bathroom accommodation and apparatus for the cleansing of persons and their clothes infested with vermin. This accommodation consists of a bathroom for males and one for females, properly furnished with apparatus for the disinfection of the infected clothing. The architects are Messrs. ordon & Gunton, Finsbury House, E.C.

Illustrations.

BEDALES SCHOOL, PETERSFIELD.

THIS is a large private school, built for Mr. J. H. Badley, the headmaster, at Steep, near Petersfield. The illustration shows a view from the south-west. The south or main front is centred on the end of the Great Hall, with its stone mullioned window and large gable. To the eastward of the hall is the private wing containing the headmaster's house; to the westward the school-rooms, returning with a west wing, set at right angles to the front, to enclose a quadrangle, the northern side of which is further enclosed by the workshops, with studio and bookbindery over, and the fives courts, and the eastern by the central block containing servants' offices and bedrooms, the matron's room, storerooms, sick dormitories, and bathrooms, &c.

The basement of the school buildings, in the west wing, contains the heating chamber, a drying-room for clothes, boot rooms, &c. On the ground floor are, in the south building, the headmaster's study, music and class rooms, the masters' common room, bathrooms, and lavatories, and chemical and physical laboratories; the corridor connecting these and forming two sides of the glass roofed quadrangle, is an open cloister with a quadripartite vaulted ceiling.

On the first floor of the school buildings are the remaining class and music rooms, and the library, in the north-west angle. The corridor is an open arched loggia looking out upon the quadrangle.

On the second floor are the dormitories, the bathrooms, and the masters' bedrooms.

There are two more dormitories and one masters' room over the hall.

The buildings are of local red brick; the walls, where the brick is exposed, being built with cavities, and being elsewhere coated with fine rough-cast stucco. The roofs are covered with local red tiles. The great aim has been to admit as much light and air as possible.

The builders are Messrs. Holloway Bros., of London; the architect Mr. E. P. Warren.

The school is lighted by electricity, for which special plant is provided; and the water supply is obtained by an electrical pump.

"MUNSTEAD WOOD."

THIS house was built for Miss Jekyll by Mr. Thomas Underwood, of Dunsfold, Godalming, from the designs and under the directions of Mr. E. L. Lutyens.

The walls are built of local stone, the roofs covered with tiles, and the principal timbers, window frames, &c., are of English oak.

"TIGBOURNE COURT."

THIS building was erected for Mr. Edgar Horne. It is of local stone, with small cast bricks for mullions, &c. The roofs are covered with tiles.

The house is on a limited site, and is built on the road side, so as to give the maximum of garden ground on the south and east sides.

The architect is Mr. E. L. Lutyens; the builder, Mr. Maxey, of Reading; and the plumbing was carried out by Mr. Allen, of Eastbourne.

THE PALAZZA UGUCCIONI.

THE Palazza Uguccioni is situated in the Piazza della Signoria, Florence, and is an excellent example of Florid Renaissance architecture. It was designed in the sixteenth century by Mariotto di Zanobi Folfi.

D. MCKAY STODDART.

COLUMN, ST. MARK'S, VENICE.

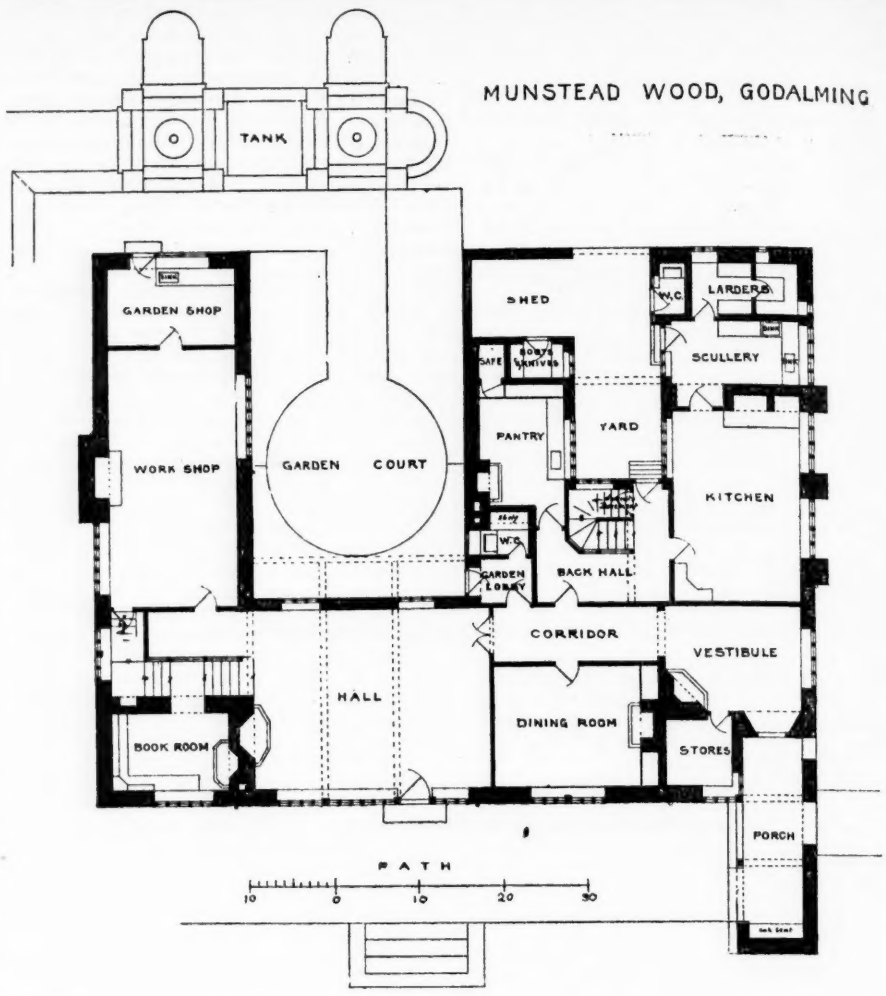
THIS is one of the two short square pilasters, with Greek monograms, at St. Mark's, in the Piazzetta. They are referred to in our leading article this week.

The cap is from the entrance-hall, or atrio, of St. Mark's. The drawings are by Mr. D. McKay Stoddart.

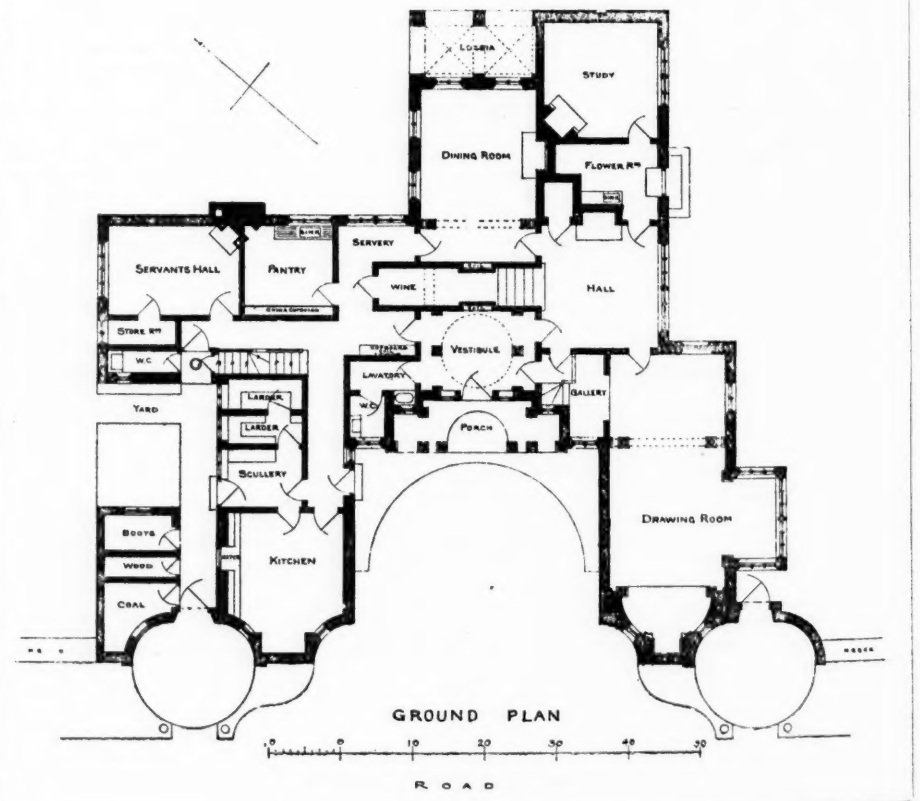
FORMBY GOLF CLUB HOUSE.

THIS design was submitted in a recent competition, limited to Liverpool architects, by Mr. James Strong. The view represents a plain treatment in cement pebble-dash, having a red brick base and tiled roof. The drawing was exhibited at the Royal Academy this year.

MUNSTEAD WOOD, GODALMING



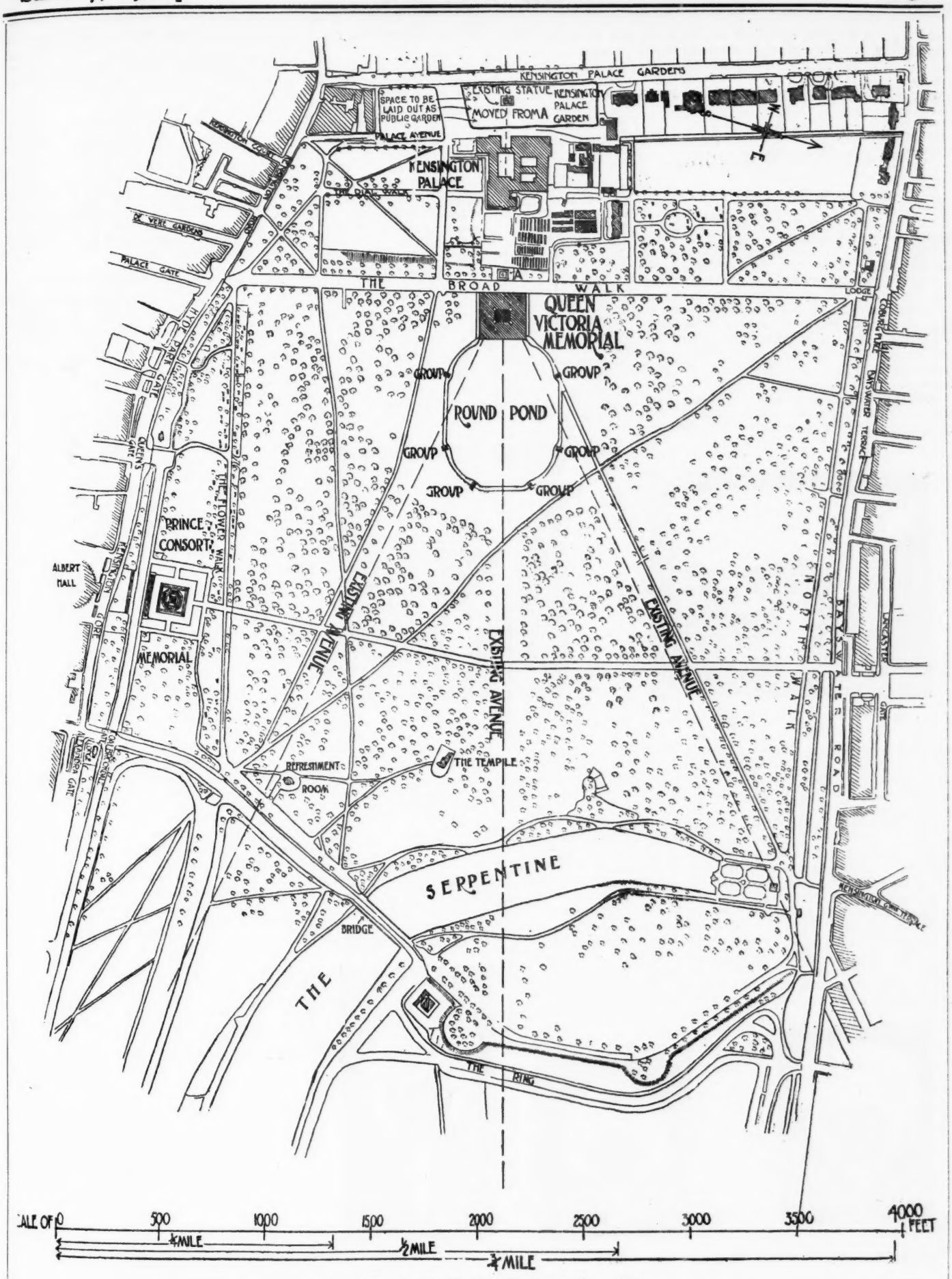
TIGBOURNE COURT, WITLEY



THE PLYMOUTH ARMS, ST. FAGANS, GLAMORGANSHIRE.

THE Plymouth Arms is an old village hostelry near the entrance to the picturesque grounds of St. Fagan's Castle, the Glamorganshire residence of the Right Hon. Lord Windsor, to whose family the inn has belonged for many years.

The alterations were carried out some time ago by Mr. Edwin Seward, and in adapting the older house and adding to it, Lord Windsor used the opportunity to apply to it certain ideas as affecting public-house management, which have caused this work to be regarded with much interest, not alone within the immediate locality. It has been referred to as an instance of the "Gothenburg system" of utilising a licence, but although it is in many respects a model public-house properly supplying all the requisites of a place o refreshment under good management, its specialty relies rather on the principle which has recently been put into more general appli



Proposed Site for the Victoria National Memorial.

cation by Lord Grey and his colleagues, in accordance with which the persons who conduct the business have no interest or advantage in the sale of intoxicants of any description. The planning arrangements are dependent on this, and the place altogether will always be interesting as one of the first instances in this country of an inn arranged to meet the requirements of a village public-house attractively, and with specialties as to construction and management which ensure that the business carried on is of a good class, usefully serving the neighbourhood, as distinct from providing the abnormal "facilities" which so often distinguish the public-house.

Correspondence.

To the Editor of THE BUILDER.

THE SITE FOR THE VICTORIA NATIONAL MEMORIAL.

SIR,—I have been urged, even at the eleventh hour, to bring under your notice an alternative site for the Victoria Memorial—on the elevated plateau in front of Kensington Palace—which about a month ago I ventured to suggest to an important member of the Memorial Committee. The accompanying plan, reduced from the Ordnance Sheet, shows the site in question. With its converging avenues, fine sheet of water, open space, and endless ornamental po-sibility—without the sacrifice of a single tree or altering in any way the present character of Kensington Gardens—this site is of unequalled importance and beauty. Further, its special fitness for the memorial to our late Queen rests on her having been born at Kensington Palace—where her toys are still preserved—while it was there she was told of her succession to the Throne. No such associations gather round Buckingham Palace. I am therefore not without hope that you may be induced to give the subscribers

and the general public, as is just and right, an opportunity of judging as to the relative fitness of suggested sites for the National Memorial to our great Queen. WEMYSS.

Gosford, Longniddry,
August 22, 1901.

The Student's Column.

GAS AND GAS FITTINGS.

10.—LUMINOUS FLAT FLAMES.

TO obtain the highest lighting efficiency from a luminous flame the pressure under which the gas escapes at the point of ignition must be very low. The luminosity of the flame is due to the presence of minute particles of solid carbon liberated by the decomposition of certain hydrocarbons under the influence of heat. The greater the temperature to which the carbon particles are heated the greater is the intensity of the light emitted.

When gas issues under high pressure from the burner, less light is emitted from the flame than when the gas is burned under low pressure, because rapid currents of air are induced in the neighbourhood of the flame, which consequently becomes cooled and over aerated, and becomes less highly charged with the solid carbon particles.

The gas should issue from the burner in such a manner that the flame is capable of supplying itself with that proportion of air required to effect complete combustion of the gas without cooling the flame by undue dilution. If the flame is of such shape or dimensions that it cannot attract to itself sufficient air to completely oxidise all the carbon particles liberated, the flame becomes smoky and emits less light than when the gas is consumed under favourable conditions. A poor quality gas requires less air than a rich gas, and the apertures in a burner to consume the former should be larger than those in a burner for rich gas. A pressure of 0·5 in. at the inlet of the burner is sufficient in most cases.

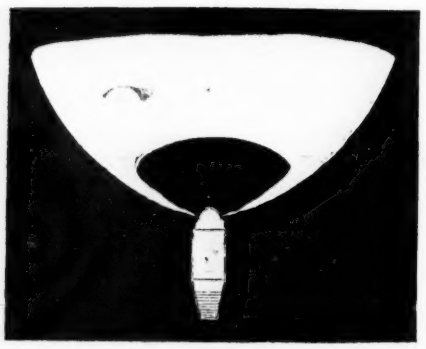


Fig. 18.—Batswing Burner and Flame.

Flat flame burners may be divided into three classes:—(1) Batswing, (2) union-jet or fishtail, (3) slit union burners.

The burner tip should always be made of some material which is not a conductor of heat, the materials most extensively used being steatite and enamel.

Batswing Burners.—The batswing burner (fig. 18) yields a flame having a shape somewhat resembling that of a bat's wing. It is especially adapted for rich gas, such as that obtained from cannel coal, of from eighteen to thirty candle power.

The richer the gas the more narrow must be the slit in the burner, and the smaller the rate of consumption.

Union-jet or Fishtail Burner.—Bray's union-jet burner is an enamel burner cased in brass. The gas issues from two channels drilled in the enamel at an angle somewhat greater than 45 deg., the size of the orifices being dependent upon the quality of the gas to be consumed.

The burners range in size from No. ooooo to No. 9, the latter having the largest orifices. The inclination of the two channels in the enamel also varies according to the quality of the gas to be consumed, so that the angle at which the two jets of gas impinge against each other may be such as will give a suitable spread to the flame when supplied with gas under low pressure. The fishtail burner derives its name from the shape of the flame it gives. The flame being of less breadth than the batswing flame is less liable to crack the glass shades commonly used with flat flames. The light efficiency obtained when these burners are used with gas under the full pressure at which it is usually supplied to the consumer (say, 2 in.) is very low. The gas pressure ought to be reduced to about 0·5 in. before passing to the burner, but, as a matter of fact, the majority of gas consumers use Bray burners without a governor of any description, the sole regulation of the gas consumption being that produced by turning the gas cock until the flame appears to be emitting the maximum quantity of light.

Fig. 21.—Slit Union Burner and Flame.

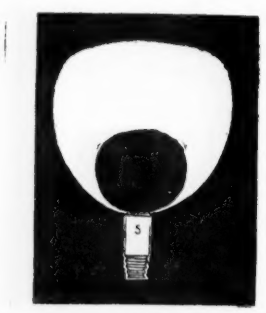


Fig. 19.—Union Jet or Fish-tail Burner and Flame.

Bray Burners with Economisers.—The gas "economiser" is merely a small expansion chamber of brass, fitted internally with a muslin screen and terminating at top with a slit burner. These economisers slip over the ordinary Bray burner, and have the effect of materially increasing the illuminating power of the flame without affecting the rate of gas consumption. They are particularly effective when used in places not provided with governors, and supplied with gas under the usual pressure of 1½ to 2½ in. Bray's "Codac" economisers may be bought retail for a 1d. each, or 7d. per dozen, and although like all slit burners they gradually become blocked with carbonaceous deposit, their price is so small that they may be replaced by new ones every two or three months without appreciably affecting the annual cost of maintenance of a lighting installation. The Bray burners most extensively used are Nos. 4 and 5, consuming 8 and 10 cubic feet per hour respectively under the ordinary gas pressure. These may with advantage be replaced with No. 2 burners capped with No. 7 Codac economisers. When the economisers are discarded for new ones, it is not necessary also to renew the No. 2 burners.

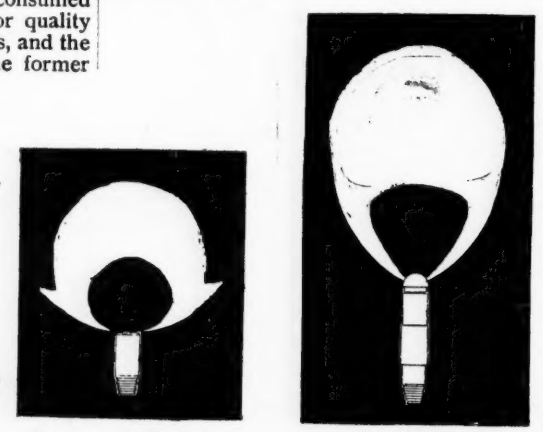


Fig 20.—Bray Burner with and without Economiser.

Bray's adjustable burners are constructed on similar lines, but the upper portion of the burner is made to screw on to the lower portion instead of to slip over it.

The following tables show the lighting power and rate of gas consumption obtained with a No. 2 and No. 3 Bray burner (patent enamel regulator) when tested under different gas pressures with and without the economiser, the gas cock in every case being turned fully open without regard to the appearance of the flame. The quality of the gas tested in a standard Argand burner was 15½ candles per 5 cubic feet per hour rate :—

No. 2 Bray Burner without Economiser.

Pressure of gas supply. Inches.	Gas Consumption. Cubic feet per hour.	Illuminating power. Candles.	Candles per cubic foot per hour. Candles.
1·75	5·6	1·4	0·25
1·00	4·1	1·7	0·41
0·50	2·5	1·2	0·48

No. 2 Bray Burner with No. 7 Codac Economiser.

1·75	5·6	16·6	2·96
1·00	4·1	9·6	2·34
0·50	2·5	4·8	1·92

No. 3 Bray Burner without Economiser.

1·75	6·75	4·0	0·59
1·00	4·70	3·8	0·80
0·50	3·00	3·0	1·00

No. 3 Bray Burner with No. 7 Codac Economiser.

1·75	6·75	18·0	2·66
1·00	4·70	11·4	2·42
0·50	3·00	6·6	2·20

The relative sizes of the flames obtained with a No. 2 Bray burner, with and without the No. 7 Economiser respectively, are shown in fig. 20. The rate of consumption under a pressure of 1·75 in. was 5·6 cubic ft. in each case, and the illuminating values were 1·4 and 16·6 candles respectively.

It will be observed that the lower the pressure the better the result when no economiser was used, but that when the burner was capped with the economiser the results improved as the pressure increased. The gas issuing from the economiser is under less pressure than when it issues from the orifices of the burner below it, and in every case the economiser increased the light efficiency of the gas. The light efficiency obtained when the Bray burners were used without an economiser would probably have been higher had the flow of gas to the burners been adjusted by turning the gas-cock until the flame appeared to be giving the maximum amount of light. Professor Lewes gives the following table of comparative duties of flat flame burners of different sizes tested with 16-candle gas, but the pressure of the gas is not stated, and the flames were probably always adjusted by turning the gas-cock until the brightest flame was obtained.

		Candles per cubic foot per hour.
Flat flame burner (without Economiser)	No. 0 ...	0·59
Ditto	1 ...	0·85
Ditto	2 ...	1·22
Ditto	3 ...	1·63
Ditto	4 ...	1·74
Ditto	5 ...	1·87
Ditto	6 ..	2·15
Ditto	7 ...	2·44

Slit Union Burners.—The slit union burner is a combination of the union-jet and batswing burner. It somewhat resembles the batswing burner in appearance, but has a recessed top, and produces a flame wider at the base than the batswing, and less ragged at its upper edges. These burners are often employed for street lamps.

Sugg's "Winsor" Burner is a flat flame burner, provided at the bottom of the burner chamber with a screw regulator, by means of which the gas consumption can be reduced to suit the gas pressure. Every variation in pressure necessitates a readjustment of the regulator, and these burners are therefore intended to be used where a governor is placed at the outlet of the meter.

Sugg's "Christiania' Burner is another flat flame burner provided with a self-acting governor with a screw on top of the gas

chamber to regulate the consumption to any desired point.

Iron Burners.—Flat-flame burners constructed of iron are still used for flames exposed to the open air, as for stalls and the outside fronts of shops. They will stand rough usage from rain and wind better than the finer grade steatite or enamel burners, but the yield of light from them per unit of gas consumed is very low, and they also have the disadvantage of being liable to become blocked by rust.

[The diagrams of gas flames in this chapter, though not, of course, the actual size, are correct in their relative proportions.]

TRADES UNION CONGRESS.

THE annual meeting of the Trades Union Congress was opened in the Albert Hall, Swansea, on the 2nd inst., Mr. C. W. Bowerman presiding. The Congress having been welcomed by the Mayor and others, Mr. S. Woods, Secretary, presented the Report of the Parliamentary Committee, which stated that since the last Congress several questions relating to the Workmen's Compensation Act had been before the Law Courts, and decisions in the Appeal Court had been challenged by the trade unions, taken to the House of Lords, and in every case reversed in the interests of the workers. It must be obvious to every one who had watched the proceedings of Parliament that it was useless to expect any active measures of industrial reform from the House of Commons, because, composed as it was at present, it was plain that any measure having for its object the improvement of the condition of the working classes, the strengthening of trade-union principles, or attacking existing monopolies was blocked by the dilatory proceeding of the House of Commons and the taking away of the opportunities of private Members by the Government, thus making it difficult to pass any progressive measure of labour reform. This was proved by the experience in successive Sessions with the Miners' Eight Hours Bill, and the Committee were of opinion that till these initial difficulties to legislation were removed, trade unions and the working classes of the country would always be hampered in their desire for progressive labour legislation. . . . . The one case that put every other in the trade-union movement in the shade was the remarkable decision of the House of Lords in the Taff Vale picketing appeal. During the last twenty years large sums of money had been spent by trade unions with the object of keeping intact and safeguarding trade union funds; especially had this been the case in connexion with some of the larger trades, because it was contended by all trade-union leaders that the real object and intention of the Trade Union Act was to give the fullest protection to these funds. . . . . This judgment was so far-reaching in its effect on the trade-union position and action that the Parliamentary Committee lost no time in placing the matter in the hands of their advising counsel, who had given the following opinion:—"The position of trade unions created by the judgment in the Taff Vale case is very serious. In my opinion, the funds of unregistered unions were equally liable with unions for damages caused by the illegal acts of persons acting as agents for and on behalf of those bodies. The seriousness of the judgment is because of the position of the law relating to picketing as laid down in the case of Lyons *v.* Wilkins. Under the judgment there it will be exceedingly difficult to conduct a strike with any degree of success without doing illegal acts. The consequence of these acts, if done, in the words of Lord Macnaghten, by persons who from their position might be taken fairly to represent that body, will be to render the funds of the society liable for the damage occasioned by such illegal acts. So that the first step to be taken, in my opinion, should be that the first case where an injunction is sought to restrain persons from picketing should be taken to the House of Lords under the authority of Congress or such persons as it would authorise so as to prevent possibility of anything happening similar to that in the case of Lyons *v.* Wilkins. I am also of opinion that the various unions should amend their rules so as to prevent as far as possible action being taken against unions now that they are sueable in their collective capacity. The last point referred to me for opinion is as to whether or not the unions under the judgment have obtained any benefit in the matter of being able to sue employers. I think there is a great advantage of being able to sue, say, a vindictive employer, who might try to break up or otherwise injure a union for his own benefit. If it can be shown that employers did such an act I should say that a good cause of action lay with the union against such an employer."

Mr. Bowerman delivered his inaugural address as President on Tuesday. The Congress afterwards proceeded to the consideration of the Parliamentary Committee's report.

Mr. Pete Curran (London) moved:—"That this Congress expresses its strong admiration at the courage and behaviour of the Bethesda quarrymen during their long and arduous struggle to free themselves from the trammels of serfdom and to establish the principle of combination, and further emphatically condemns those in authority who are responsible for the drafting of the military and police forces into that district, there being absolutely no ground for such unwarrantable action."

Mr. Brace (Monmouthshire Miners) seconded the resolution.

Mr. Moyses (London) moved an addition to the resolution recommending the societies represented at the Congress to contribute a sufficient regular income to the quarrymen so as to enable them to carry their struggle to a successful issue.

Mr. Sexton (Liverpool) seconded the addition, and the resolution, with the addition, was unanimously agreed to.

Mr. Steadman (London) moved that the standing orders should be suspended so that the Parliamentary Committee's recommendations on the Taff Vale case should be considered. These were that the Congress take a test case to the House of Lords to settle how far picketing may be carried out without infringing the law and rendering the funds of the societies liable for damages. The Committee further advised the establishment of a fund for the purpose of carrying this out, and also that each society should amend its rules to secure protection against some of the consequences of the House of Lords judgment in the Taff Vale case.

Mr. E. Browne, standing counsel to the Congress, explained the legal situation created by the decision of the House of Lords, and advised the delegates to agree to the recommendations of the Parliamentary Committee.

Mr. Galbraith (London) moved, and Mr. B. Turner (Batley) seconded, the resolution recommended by the Parliamentary Committee.

Mr. Baker (Stockton-on-Tees) moved as an addition "and urge each society to use their best endeavours to bring about such alteration in the law as will meet with the approval of this Congress."

Mr. R. Bell, M.P. (Secretary of the Railway Servants' Society), said they had no doubt all been startled by the announcement in the papers that an action for 20,000*l.* had been entered against his society. He could not go fully into the subject, as the case was *sub judice*. The present position was that there had been an argument before the Master of the Rolls with regard to the venue of the trial. The railway company wanted it in London, and the Railway Servants' Society wanted it in Glamorganshire. The Master of the Rolls had reserved his decision until after the Long Vacation. In his (Mr. Bell's) opinion, it was hopeless for the unions ever to get back the *status quo* that existed before the decision of the House of Lords. What they must do, however, was to secure an amendment of the Trades Union Act so as to protect all funds for a benevolent purpose.

Mr. Sexton (Liverpool) said that no man could have expected any other decision than that given by the House of Lords if he looked at the matter from an equitable point of view.

The president announced that the Parliamentary Committee were quite willing to accept the proposed addition.

The discussion was continued on Wednesday, when recommendations of the Parliamentary Committee were agreed to.

Resolutions were agreed to advocating the amendment of the Factory and Workshops Act in the following particulars:—By the appointment of inspectors in building trades; by the prohibition of women and young girls working overtime; and by raising the working age limit for children to fifteen.

A motion by Mr. B. Tillett in favour of the establishment of compulsory arbitration was defeated.

OBITUARY.

MR. BENNETT.—We regret to announce the death, on August 21, of Mr. Robert Isaac Bennett, of No. 17, Cooper-street, Manchester, partner of the firm of Messrs. Royle & Bennett, of that city. Mr. Bennett was elected a Fellow of the Royal Institute of British Architects in 1888, of which he was a member of the Council; he was also President during a long period of the Manchester Society of Architects. The firm of Messrs. Royle & Bennett planned and designed many schools and other buildings for the Manchester School Board, amongst them being the Moston-lane Board Schools, the offices at Deansgate, and the Higher Grade Schools at Cheetham. They also designed the block of warehouses and shops at the corner of Mount-street and Lloyd-street, and carried out the recent improvements of the approach into Albert-square, Manchester. He and his partner, Mr. A. Royle, had been employed in an adjudicatory capacity in respect of several important competitions—including those for the Constabulary Offices at Warrington, the Heaton Norris District Council public offices; the Accrington-road, Blackburn, Board Schools; and, a few months ago, the St. Matthias Schools, for the Salford School Board.

MR. C. DORMAN.—We regret to record the death of Mr. Charles Dorman, senior member of the firm of Messrs. Dorman & Son, architects and surveyors, Abington-street, Northampton, which took place at his residence early on Sunday morning. Mr. Dorman, who came to Northampton from Uppingham, started business in Northampton in 1882, and in 1897 he took his son into partnership with him. Prominent buildings, especially in Northampton, have been built from his designs. Mr. Dorman was sixty-three years of age, and leaves a widow with five daughters and one son—Mr. C. H. Dorman—who will carry on the business.

GENERAL BUILDING NEWS.

CONGREGATIONAL CHURCH, SWINTON.—On the 29th ult. a new Congregational church, erected at a cost of about 2,200*l.*, was formally opened at Swinton. The architects were Messrs. Hemsoll & Paterson, of Sheffield, whilst the contract was let to Mr. Miles N. Brown, of Mexboro'. The building is faced with Mexboro' "rocky" stone. The windows are of leaded coloured glass by Messrs. Jeffrey & Foster, of Sheffield. The accommodation is for 500 persons, including a gallery at one end of the building.

CONGREGATIONAL CHURCH, BLACKPOOL.—A new Congregational chapel has just been opened in Warley-road, North Shore, Blackpool. This chapel has cost 5,000*l.*, and the land another 1,000*l.* It was built by the Mayor, Alderman T. H. Smith, from the designs of Messrs. Anderson, Symond, & Crawford, architects, of Edinburgh.

THE HIPPODROME, BRIGHTON.—A large building has been erected in Middle-street, Brighton, on the site of the late Ice Skating Rink, from the plans of Mr. F. Matcham, of London. The work has been carried out by Messrs. Griffith & Co., London.

COLLEGE OF DOMESTIC SCIENCE, LIVERPOOL.—A building has been erected on a site at the junction of Seel-street and Colquitt-street, Liverpool, for the School of Cookery. The entire scheme—land, buildings, furnishings, &c.—will cost upwards of 10,000*l.* The new college, which has been built from designs prepared by Messrs. Pain and Charles Blease, architects, Liverpool, will include all the different departments now carried on in separate buildings.

THE "CENTURY" THEATRE.—The old Adelphi Theatre in the Strand has been remodelled and renamed. The stage of the old "Adelphi" is left practically intact, but the auditorium, approaches, &c., have been rearranged, and included in the new structure is an adjoining property on the western side, enabling the architects to provide a more spacious crushroom, with managerial offices in addition, besides giving an opportunity for revising the approaches to the stalls. A subway now leads from the main entrance and crushroom to both prompt and O P. sides of this part of the house. Centrally situate in the crushroom is the main staircase leading to the foyer and dress circle, with its lounge and saloon, together with the ante-rooms. The Adam style of decoration has been the keynote of the architectural treatment. Considerable improvement has been effected in the auditorium. The private boxes are on the stalls and dress circle level only, eight in all. On the upper circle, in lieu of boxes, the seats have been continued around to the proscenium opening in the stalls. There are upwards of 200 seats. The pit is one of the largest in London; it has a refreshment saloon and emergency exits. The prevailing scheme of decoration is ivory white, yellow, old gold, and electric blue, developed in silk, velvet, and mural coverings and paintings. The stage was unusually large in the old days, and has been somewhat curtailed by the erection of dressing-rooms on the stage-level for the use of the principal artistes. In all there are twenty-four dressing-rooms. The heating is on the low-pressure system. There is a complete installation of electric light, with gas as a stand-by. Westward the elevation has been extended in keeping with the old façade, and a new glazed shelter has been provided over the principal approaches. The whole of the scheme for the reconstruction of the theatre has been prepared by Messrs. Ernest Runtz & Co., architects, of Walbrook, E.C.; and all the details of the plastic decoration, and the decorations themselves, have been designed by them. Mr. Frank Kirk was the contractor. The Florentine frieze over the proscenium was executed by Mr. Charles Buchel. Messrs. Maple & Co. were entrusted with the furnishing. Amongst other firms engaged are the following:—Electric installations, Vaughan & Brown; heating, &c., Vaughan & Brown; fireproof curtains and hydrants, Merryweather & Sons; act drop, Charles Hemsley; stained glass, Prest & Co.; sanitary arrangements, Barton. The whole of the decorative scheme has been carried out by Mr. Edward Bell, Castle-road, Kentish Town. The proscenium opening is 30 ft. by 31 ft.; the stage is 64 ft. wide and 87 ft. deep, extending back to Maiden-lane; the height of flies from stage 28 ft. 6 in.; the distance between fly-rails 46 ft.; the auditorium is 56 ft. wide and 77 ft. deep from curtain line; there are over 200 stalls, 170 dress circle seats, 250 upper circle seats, and the gallery and pit are very large; the crush room is 33 ft. long by 20 ft. wide, and the foyer 44 ft. 6 in. long by 18 ft. wide, with deep columniated recesses at either end.

THE OLD HOLBORN WORKHOUSE.—The old workhouse, near the western end of Clerkenwell

road, at the junction with Rosebery-avenue, is about to be pulled down. The site will be occupied by a block of casual wards in Little Gray's Inn-lane, which the Guardians of the Holborn Union are about to erect, after plans and designs prepared by Messrs. Smith & Coggin. The present building is one of the last of its kind that has remained in London

THE ST. HELEN'S TOWN HALL-SQUARE.—The work of re-arranging the property in front of the St. Helen's Town Hall, and clearing a space of about 4,000 square yards, in order to form an open space in front of the Town Hall and Gamble Institute, is, it is stated, being pushed on rapidly. Messrs. Briggs & Wolstenholme, the architects, have arranged a line of buildings in harmony with the building in which the free library and technical schools are housed. Immediately the disturbed parties are settled in their new premises, Mr. Joseph Ellison, the builder, who is carrying out the work, will have the new space cleared and the square finished as rapidly as possible.

THE BUILDING TRADE IN SHEFFIELD. — It is a matter of common knowledge that during 1899 and 1900 there was abnormal activity in the building trade of Sheffield, all parts of the city, and principally, of course, the suburbs, being affected. As a matter of fact, 2,616 new houses within the city boundaries were certified as fit for occupation during the former year, whilst during the succeeding twelve months the total rose to 2,797. An opinion seems now to prevail that a slump in the local building trade is inevitable at no distant date. The facts supporting such a contention are difficult to find. It is perfectly true that (as already stated) the number of houses erected in recent years has largely increased, but the real question to be considered is whether more houses have been built than were required to meet the demands of a growing population. On this point nothing could be more significant or conclusive than one fact: The percentage of losses on the district rate in consequence of houses being unoccupied was lower during the twelve months ended March 25 last than for any similar period during the last ten years. That the supply of housing accommodation has not exceeded the demand is further proved by the readiness with which owners of newly-completed houses are able to find occupiers. In most districts of the city at the present time there is such a demand that builders and owners have considerable difficulty in keeping their property free of tenants till it is properly inspected and certified as fit for occupation, whilst any one known to have houses to let is besieged by applicants.—*Sheffield Independent.*

SANITARY AND ENGINEERING NEWS.

DOCK, BURNTISLAND, FIFESHIRE.—The new deep water dock at Burntisland was opened on the 23rd ult. Its area is about 12 acres, which is twice the dimensions of the old basin; it is fitted with three hoists, each of which is expected to load about 400 tons an hour. The south wall of the dock is pitched, and from the slope a timber jetty is brought forward, on which the third hoist has been erected. Unlike the old dock, which is equal sided, the new basin is oblong in shape, extending to 1,270 ft. in length by 554 ft. broad at the widest part. Much of the reclaimed ground extending east from the dock quays to the Lammerlaws has not yet been levelled. It will afford storage room for waggons of coal waiting shipment. Temporary means of lighting the dock will be employed pending the installation of the electric light, which has been decided on as the illuminant. The engineers of the new dock were Messrs. P. W. Meek, Urquhart, and R. Henderson, and the contractors Sir John Jackson (Limited), with Messrs. H. C. Wynne Edwards and A. Whitley as local managers. Sir William Armstrong & Co., of Newcastle, have supplied the dock gates, hoists, and hydraulic machinery.

SEWERAGE DISPOSAL, BAILDON, YORKS.—The Urban District Council of Baildon has accepted the tender of Mr. Wm. Brigg, of Frizinghall, Bradford, at 11,900*l.* for works of sewerage and sewage disposal, for the districts of Baildon Wood Bottom, Baildon Green, Lower Holme, and Low Hill, and the works are to be proceeded with immediately. The engineers to the scheme are Messrs. Beesley, Son & Nichols, Westminster.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—The Pulsometer Engineering Company, Limited, have removed their works and offices from Nine Elms, S.W., to Nine Elms Ironworks, Reading, Berks. All communications should now be addressed to Reading, though the company are retaining their offices and showroom at Queen Victoria-street, E.C.

VOLUNTEERS' HEADQUARTERS.—It is announced that the War Office authorities have approved of a site in Whitecross-place, Shoreditch, for the erection thereon of new headquarters for the 3rd London Rifle Volunteers.

LONDON BRIDGE.—The Royal Assent having been given to the measure introduced last session by the Corporation of London, the work of widening the bridge will, we gather, be soon proceeded with. The plans and designs have been prepared by Mr. Andrew Murray, the City Surveyor, in conjunction with Mr. Cruttwell, Resident Engineer of the Tower Bridge. They provide for a widening of the structure from 53 ft. to 65 ft., the additional width—nearly 6 ft.—of each footpath being supported by granite corbels or shoulder-pieces, which will be bolted on to the main fabric of the bridge with steel work. A balustrade will replace the present stone wall on either side, and it is calculated that the increased weight to be laid upon the foundations will not exceed 67 lbs. to the square foot. It is estimated that the cost will amount to about 100,000*l.*

THE GLASGOW SCHOOL OF ART.—We have received the Prospectus and Prize Scheme of this school for session 1901-1902, the autumn term of which commenced on September 5. The work of the school is divided into four departments: (1) Drawing and Painting; (2) Architecture; (3) Modelling; (4) Design and Decoration. Courses of studies are arranged in groups for each of these departments. These courses are for the training of students as painters of landscape and the figure, architects, modellers, sculptors, designers and decorative artists, art masters and mistresses. Architect students learn the elements of construction; the nature of materials and the mechanics of architecture; draw from the cast; study the historical development of architecture in Europe; acquire a knowledge of the principles and growth of ornament; measure and sketch buildings and receive instruction in architectural design. Concurrently with this, they study drawing and modelling from the antique and life, and attend the lectures on ornamental design; anatomy and proportion and figure design and decoration. They are specially prepared for the examinations of the Royal Institute of British Architects. There is a museum of casts, containing examples of figure and ornament from the Classic, the Gothic, the Renaissance, and later styles. A large addition of casts—figure and ornament—was made last session. The casts are arranged under the heads of the various historic styles. Where possible, photographs are being added, showing the ornament or figure in its place in the building. The school reference library contains over 1,400 volumes of works on architecture, the graphic and the decorative and applied arts, together with portfolios of prints, drawings, and photographs. A collection of lantern slides for lecture purposes is being formed, and embraces an historical series of each of the following architectural styles:—(1) Greek, (2) Roman, (3) English Gothic, (4) Italian Renaissance, (5) French Renaissance, (6) English domestic work, (7) Scottish work. The reading-room is always open, and is free to all students of the school. A school museum of applied art is also a feature in the school building. A set of workshops fitted with the necessary appliances for dealing with designs in the material has been specially built. These fittings include kilns, muffles, stoves, and other appliances, so that students may carry their works to a completion. The subjects dealt with are stained glass, decoration of interiors, needlework, bookbinding, ceramic decoration, enamels, block cutting, mosaics, sgraffitto, gesso, lithographic design, posters, &c., metal work, wood carving, stone carving, furniture. The headmaster of the school is Mr. Francis H. Newbery. In the architectural section Mr. Alex M'Gibbon, A.R.I.B.A., is the director, and he and the following gentlemen are the instructors: Messrs. W. R. Watson, James Smith, and John Dunlop. The architectural classes have also the advantage of architect visitors.

THE NORTHAMPTON INSTITUTE, CLERKENWELL.—At the Northampton Institute (City Polytechnic), St. John-street-road, E.C., the arrangements have been completed for the educational course for the season 1901-1902. The aim of the Northampton Institute is to provide classes in Technological and Trade Subjects, and to this end attention is paid first to the immediate requirements of Clerkenwell. The educational courses fall into two distinct sections. The Engineering Day Courses for students who are willing to give the whole of their time for one, two, or more years to a thorough and systematic training in one of the branches of engineering dealt with, and the Evening Courses and Classes, which are provided for the needs of those who, on account of being engaged during the day, or for any other cause, are unable to devote the whole of their time to attendance at day courses. In the Artistic Crafts Department the subjects undertaken are those which will be serviceable to jewellers, gold and silversmiths, diamond mounters, engravers, chasers, decorative metal workers, modellers, and workers in plaster; wood, stone, and marble carvers; painters and decorators; sign writers, marblers, and grainers. In addition to the ordinary drawing and design classes held every evening, special courses have been arranged for those engaged in the gold and silversmiths, jewellery, decorative metal work, electric light fitting, building, and wood working trades. In each of these sections workshops are provided, fully equipped for carrying on practical work in the various branches of the trades, and open every evening to enable students to practise. In all classes students receive instruction in the design as well as in the practical work of their trades; short courses of lectures dealing with the artistic and technical characteristics of the various subjects will be given during the Session. The courses arranged for those engaged in the building trades are in conjunction with the lecture and practical classes in the Mechanical Engineering Department. These courses will deal with the architectural and decorative branches of the subjects and the artistic treatment of stone, wood, plaster, and similar materials used in the construction of buildings. A collection of casts, books, and photographs of examples of architectural ornament has been made, and will be further added to from time to time. It includes examples of ornament of all periods. Actual specimens of artistic handicraft productions will also be procured to illustrate special characteristics of work, and historical periods and styles. The following are the sections under which the various classes are held: mechanical engineering and metal trades; artistic crafts; electrical engineering and applied physics; technical chemistry; horological; miscellaneous trades; and domestic economy and women's trades. Judging from the book of "announcements" which has been sent us, very thorough work is being done at this institution.

THE DISMISSAL OF THE SURVEYOR OF FULHAM.—A meeting called to protest against the dismissal of the Surveyor of Fulham (Mr. Chas. Botterill) by the Borough Council was held at Fulham Town Hall on Tuesday night. Councillor McArthur moved a resolution protesting against the arbitrary and unjust action of the small majority of the members of the Council in dismissing, without reason, Mr. Botterill, A.M.Inst.C.E., after sixteen years' faithful service, placing on record their appreciation of his business abilities and courteous manner in the discharge of his duties, in the initiation and completion of the many important improvements made from time to time in the borough, and assuring him of the fact that he still retained the confidence of the general body of ratepayers. Mr. Stuart Barker seconded the resolution, and Councillors Cooney and Scriven having spoken, the resolution was put to the meeting and declared by the Chairman to be carried by the majority of the ratepayers present.

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

8,239.—ENERGY AND QUANTITY METERS (ELECTRICITY): *Siemens and Halske, A. G.*—The conductor of an induction motor meter travels between laminated iron cores that are wound with coils that convey alternating currents in different phases and with closed circuits. In the inner cylindrical core are recesses rendered adjustable with an arm in engagement with screws in order that they may be placed near opposite poles of the core, so as to compensate for errors due to friction or other causes, without affecting the fields of one pair of poles. Round holes near the edge of the core may replace the recesses, and the main or a proportional current may be carried by the coils on the poles.

8,247.—ATTACHMENT OF HANDLES AND KNOBS: *H. W. Grove.*—The neck of the knob is pierced with holes or slots for a staple that will engage with a slot cut in the spindle when the knob has been put in its place, the head and ends of the staple being taken by grooves in the neck of the knob; in another form a split collar is used instead of a staple and holes are made through the knob and spindle.

8,265.—CONSUMPTION OF SMOKE: *C. H. Bryant, A. C. Rœssler, F. M. Mitchell, and G. T. Augspurg.*—The invention is intended to deflect the gases downwards into the furnace where they may consume the smoke after they have been caused to circulate in the shape of a hollow tube as they flow upwards; within the chimney is placed a metal cylinder of which the two spiral guides are tapered downwards, and above it is a canopy divided into convoluted partitions which are shallow around their circumferences and deep around their centres, the vanes being produced down the shaft or cylinder to a short distance from the furnace.

8,275.—A SANITARY APPLIANCE: *W. Martin.*—Around the top of a commode is fashioned a trough to be filled with water for which a hanging flange forms a trap; the flange of the cover will dip into the water between it and the side of the container, and whenever the latter is inverted the seal may be perfected from a reservoir underneath.

8,289-90. — ELECTRICAL CONDUCTORS: *G. E. Heyl-Dia.*—For covering insulated or bare conductors they are passed, together with two strips of the insulating material, between grooved rollers of which the flanges are set so as to join together, without severing, the strips (the outside edges excepted) of the material. The rollers may have cutting edges that will divide the cables during the process of covering. 8,290.—In the case of multiple conductors the rollers will separate and re-cover them and a spacing-piece is placed between the conductors, a ridge being fashioned upon the upper roller which will make a groove into which nails or other fastenings can be inserted.

8,309.—MANUFACTURE OF GLASS: *H. E. Knospel.*—For the manufacture of glass containing calcium phosphate, so as to be opaque and coloured, the fluxes employed instead of potassium carbonate consist of barium or barium compounds, namely, carbonate, chlorate, hydrate, nitrate, sulphate, or oxide.

8,376.—ROTARY ROCK DRILLS: *W. George.*—A twisted bar, having an I-section, constitutes the drill, and at its cutting-end are left thickened edges by the removal of a portion of the web. For driving purposes may be employed either a hand-crank with bevel gearing, or a motor, mounted upon the frame to which a crutch and a handle are attached.

8,394.—A CONTRIVANCE FOR STARTING SIPHONS: *T. G. Rhodes and R. Gaunt.*—A piston having a middle rod is fitted within a piston-starting cylinder, an opening for the admission of the flush being formed by the cutting away of a part of the screwed cap. The piston can be removed, without disturbance of the cap, by means of a slot which is cut in the latter.

8,409.—MAKING OF CEMENTS, &C.: *G. Warren.*—The slurry for plaster of Paris, cement, and so on, is cast in moulds having movable partitions, and of which the contents are dried upon a drying-floor or upon the roof of the kiln, after which the goods are taken out of the moulds and fired in the kiln. In order to reduce the space above the bricks, the arches of the kiln are flattened. An injecting-apparatus for liquid fuel may be advantageously used with the kiln, for which confer Nos. 9,607 and 24,946 of 1894.

8,410.—APPARATUS FOR WEIRS: *C. Fohr.*—The inventor furnishes means of directing to an overflow weir all materials that might clog a sluice or other portion of a canal or a similar conduit or channel; of two pairs of parallel and horizontal bars carried upon piles, one pair is disposed at the bottom and the other pair over the level of the water, and an intermediate pair of bars may be used upon occasion. Angle-iron brackets are fastened within the bars, and upon them are arranged, in the shape of a Venetian blind, a series of flat vertical bars. By another arrangement lugs, on to which the vertical bars are pivoted, are substituted for the brackets, by which means a relative displacement of the parallel bars horizontally will cause the vertical bars to turn about their axes.

8,419.—A FRAME FOR USE BY ARTISTS: *F. W. Schüller.*—The frame, to be used for painting upon canvas, is made (by preference) of aluminium, a cord is passed around the rollers of the frame, and also around loose rollers to which hooks are fastened, the hooks being secured in eyelets made in the canvas. A winding-roller, fitted with a handle, serves for the tightening of the cord.

8,433.—MATERIALS FOR USE IN INCANDESCENT LAMPS: *F. Dannert.*—For making a homogeneous conductive lighting body the inventor moulds and heats a plastic paste of sucrate of lime or some other chemical compound, which when carbonised will produce definite parts of carbon and a metallic oxide, whilst the ratio of resultant carbon can be reduced by adding to the material a concentrated solution of some inorganic metallic salt.

8,484.—SLABS FOR FLOORING PURPOSES: *F. Woas.*—Subsidiary draining-grooves are fashioned in the slabs, and are set to run into main diagonal channels which are laid with a slight incline.

8,518.—SOLDERING ALUMINIUM GOODS: *J. Novel.*—For metal goods that have been firstly tinned are used an ordinary solder and a copper bit, with a flux, for tinning, composed of stearic acid 5 parts, resin 2 parts, and oleic acid 1 part; or else stearic acid 3 parts, and resin 1 part. For soldering purposes should be used stearic acid 1 part, and oleic acid 10 parts. The two fluxes are stated to be available for both purposes.

8,548.—PIPE AND TAP COUPLINGS: *G. Rydill.*—The socket for a tap or pipe outlet is fitted with indiarubber packing and a strainer. A nut that is screwed into the socket, and compresses the packing around the pipe, takes the nozzle. By another arrangement, a screwed cap may replace the nut, or the socket may be screwed on the outlet of a plug-cock.

8,609.—A HOLDER FOR USE IN SHARPENING TOOLS: *L. Lowndes.*—The holder, in which chisels, plane-irons, &c., can be clamped, has handles and an arm, of which the roller will run the tool upon the bench so as to maintain a uniform degree of inclination of the blade to the oil-stone.

8,633.—TILES FOR ROOFS: *G. Kistner.*—Under the lower edges of the tiles are fashioned ribs that will fit into recesses cut in the upper faces of the tiles next adjacent, and there are deeper ribs that will bear against the upper edges. The tiles, which are to be jointed with cement, have hanging ribs, feathers, and interlocking ribs, and raised ornamentations.

8,637.—FASTENINGS FOR WINDOW-SASHES, ELEVATOR-DOORS, &C.: *H. G. Carleton.*—A pivoted hook or catch is pressed forwards with a spring into engagement with a rack upon the sliding sash, which may thus be fastened at various positions. A cam-surface presses the catch back on to a magnet when the sash is closed. When the circuit is completed the magnet has sufficient strength to hold the catch back against the action of a spring, whereupon one can open the window; but if one tries to open the window when the circuit is broken, an alarm circuit will be closed through the drawing of the catch upwards by the rack-teeth, which causes a pin to touch a spring.

8,652.—A VENTILATOR FOR LARGE BUILDINGS: *C. F. Seward and H. G. Walton.*—Air outlets are formed in or near the roof so as to leave the spars untouched, and the openings are provided with shutters which consist of swinging flaps having hooked supports at their upper ends, so that they will become closed through their own weight; the shutters, however, may be closed by other means, such as rods fastened obliquely to rods that can be moved lengthwise, or bell-crank levers and rock-shafts.

8,659.—APPARATUS FOR CLEANING FLUES, TUBES, &C: *W. H. Ingersoll.*—A jet of steam is forced into the flue and so sets up a current of air within it; the egg-shaped head or nozzle of the steam-pipe will serve for scraping the interior of the flue. In another form of the cleaner its conical head is placed within an air-chamber formed by a sleeve upon a disc which engages with the head whereby air will be discharged around the flue and will mix with the middle jet of steam. Confer also No. 1,368 of 1900.

8,667.—APPLIANCE FOR USE IN EXTINCTEURS: *E. F. Steck.*—The invention concerns the mounting of the acid bottle in an extincteur. A metallic casing for the bottle is pivoted with two pins on to the cap of the receiver, which can therefore be turned backwards after it has been removed for the filling of the bottle. The falling out of the bottle upon an inversion of the extincteur is prevented by the bending inwards of one of the hangers of the bottles, whilst the turning of the case upon the pivots, when inverted, is prevented by the friction of the end of the other hanger. The stopper of the bottle will fall out, and so allow the acid and alkaline solution to become mixed, when the extincteur is inverted.

8,679.—A GUARD FOR CLOSET SEATS: *L. Spelkens.*—A sheet of paper is drawn over the opening of the seat from a pair of rollers behind it by means of spur-gearing which is driven by a pawl and a pivoted arm grooved for the working of a pin upon the side of the lid of the seat, which is hinged. The used paper is gathered around a roller and a cutting edge fitted underneath the lid cuts out a suitably-sized piece of paper whenever the lid is turned downwards.

8,680.—A SAFETY VALVE FOR HYDRAULIC CRANES AND SIMILAR MACHINES: *H. Berry.*—In order that the rams shall not return with an accidental falling of the pressure in the mains, the inventor joins the spindle of the valve in the supply-passage to a ram that works in a chamber placed in communication with the main; a reduction of the pressure will effect the closing of the valve by the pressure through the supply-passage from the principal cylinders and that of a spring which is set within an extension from the valve, and is rendered adjustable by means of a screw which is passed through a removable capping; the valve in the supply-passage may be opened for the exhausting of the water or other fluid by a supplementary valve, which is joined on to the main at a point beyond the main valves, so as to regulate the amount of supply to the chamber which contains the ram already mentioned.

MEETINGS.

SATURDAY, SEPTEMBER 7.

Sanitary Institute (*Demonstrations for Sanitary Officers*).—Inspection at Morden Hall Dairy Farm, Morden, Surrey. 3 p.m.

MONDAY, SEPTEMBER 9.

Clerks of Works Association (Carpenters' Hall, London Wall).—Monthly meeting. 7.30.

Sanitary Institute (*Lectures for Sanitary Officers*).—Mr. W. Marriott, F.R.Met.Soc., on "Meteorology." 7 p.m.

WEDNESDAY, SEPTEMBER 11.

Institute of Sanitary Engineers.—Examination and Literary Committee at 3.0 p.m. General Purposes and Finance Committee at 4.0 p.m. Opening Sessional Meeting at 7.0 p.m.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. J. Priestley, M.D., on "Sanitary Law." I. 7 p.m.

FRIDAY, SEPTEMBER 13.

Sanitary Institute (*Lectures for Sanitary Officers*).—Dr. J. Priestley, M.D., on "Sanitary Law." II. 7 p.m.

SATURDAY, SEPTEMBER 14.

Sanitary Institute (*Demonstrations for Sanitary Officers*).—Inspection at Southwark and Vauxhall Waterworks, Hampton. 3 p.m.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

August 3.—By J. HOWELL THOMAS & SON (at Carmarthen).

Llanstephan, Carmarthen.—The Cottage and 24 a. 3 r. 7 p., f.	£3,200
Orchard House and 7 a. 0 r. 17 p., f.	1,000
Church House, f.	360
Underhill Cottage, u.t. 52 yrs., g.r. 3*l.*	200
Pilrhoth, Tirbach, Maesgwyn, Tynewydd, Darkway, Park-Cnwc, Trehiddion, and Tygwynne Farms, 505 a. 1 r. 27 p., f.	20,050
Llangunnock, Carmarthen.—Penplas and Llanygorse Farms, 125 a. 0 r. 6 p., f.	1,925
Trelech-ar-Bettws, Carmarthen.—Cilhir-issa Farm, 110 a. 1 r. 30 p., f.	1,400
Carmarthen, Carmarthen. — Lammas-st., City House, f., r. 50*l.*	860

August 20.—By H. F. RUSSELL & SON (at Kington).

Almeley, Hereford. — Spearmarsh House and Windless Cottage and 12 a. 3 r. 6 p., f.	1,475

August 21.—By THOMAS MARTIN & SON (at Exeter).

Ide, Devonshire.—Pole House and 7½ a., f.	£1,300

August 22.—By T. W. GAZE & SON (at Stowmarket).

Cotton, Suffolk.—The Hill Farm, 205 a. 3 r. 4 p., f.	1,940

By EDWIN J. GILDERS (at Thorpe-le-Soken).

Thorpe-le-Soken, Essex. — Four cottages and enclosure, 7 a. 1 r. 17 p., c.	460
High-st., three houses (two with shops), f.	235

August 27.—By FRITH, GARLAND & CO.

Tottenham.—King's Cliff Villas, f.g.r.'s 65*l.*, reversion in 99 yrs.	1,630
4, 6, 8, 16, 18, 20, 22 and 48, Drayton-rd., u.t. 98 yrs., g.r. 44*l.*	2,050

August 28.—By F. ELLEN & SON.

Houghton, Hants.—Houghton Down Estate, 411 a. 3 r. 17 p., f.	4,000
Kingsomborne, Hants.—Teg Down Farm, 137 a. 2 r. 36 p., f.	1,400
Stockbridge, Hants.—Lower Sandy Down Farm, 200 a. 3 r. 38 p., f.	1,750

August 29.—By JOHN BOTT & SONS.

Peckham.—71, Rye Hill Park, u.t. 65 yrs., g.r. 8*l.* 8s., e.r. 40*l.*	360

By STIMSON & SONS.

Camberwell.—93, 95, and 109, Southampton-st., f., r. 102*l.*	1,240
97, Avenue-rd., u.t. 48 yrs., g.r. 3*l.* 10s., e.r. 32*l.*	355
Old Ford.—77 to 87 (odd), Monier-rd., u.t. 72½ yrs., g.r. 3*l.*	695
Commercial-rd., East.—107, Brook-st., f.	455
Wood Green.—4 to 10 (even), High-rd., u.t. 61 yrs., g.r. 19*l.* 4s., r. 172*l.*	1,800
Norwood.—Beulah Spa-ter., f.g. rents 27*l.*, reversions in 95 and 97 yrs.	600
16 and 17, Beulah Spa-ter., f.	500
Beulah Spa-ter., plot of land, f.	250
Notting Hill.—37 to 43 (odd), Princes-rd., u.t. 42 yrs., g.r. 24*l.*	1,000

By DOUGLAS YOUNG & CO. (on the estate).

Finchley. — Stanhope-av., &c., 73 freehold building sites	9,100

August 30.—By ROBERT NEWMAN.

Regent's Park.—83, Upper Gloucester-pl., and 48, Huntsworth-mews, u.t. 19½ yrs., g.r. 16*l.* 16s., r. 119*l.*	550

By A. J. SHEFFIELD.

Spitalfields.—50 and 52, Brushfield-st., u.t. 20½ yrs., g.r. 120*l.*, r. 292*l.*	860
Tottenham.—1, 6 to 9, Hartington-ter., u.t. 61 yrs., g.r. 19*l.* 10s., r. 131*l.*	665

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.		
Hard Stocks	1	14	0	per 1,000	alongside, in river.
Rough Stocks and Grizzles	1	11	0	"	" "
Facing Stocks	2	12	0	"	" "
Shippers	2	8	0	"	" "
Flettons	1	8	6	"	at railway depôt.
Red Wire Cuts	1	14	6	"	" "
Best Fareham Red	3	11	0	"	" "
Best Red pressed Ruabon Facing.	5	5	0	"	" "
Best Blue Pressed Staffordshire	4	4	6	"	" "
Do., Bullnose	4	9	0	"	" "
Best Stourbridge Fire Bricks	4	2	6	"	" "
GLAZED BRICKS					
Best White and Ivory Glazed Stretchers	13	0	0	"	" "
Headers	12	0	0	"	" "
Quoins, Bullnose, and Flats	17	0	0	"	" "
Double Stretchers	19	0	0	"	" "
Double Headers	16	0	0	"	" "
One Side and two Ends	19	0	0	"	" "
Two Sides and one End	20	0	0	"	" "
Splays, Chamfered, Squints	20	0	0	"	" "
Best Dipped Salt Glazed Stretchers and Headers	12	0	0	"	" "
Quoins, Bullnose, and Flats	14	0	0	"	" "
Double Stretchers	15	0	0	"	" "
Double Headers	14	0	0	"	" "
One Side and two Ends	15	0	0	"	" "
Two Sides and one End	15	0	0	"	" "
plays, Chamfered, Squints	14	0	0	"	" "
Seconds Quality White and Dipped Salt Glazed	2	0	0	"	less than best.

	s.	d.		
Thames and Pit Sand	7	3	per yard, delivered.	
Thames Ballast	6	0	"	"
Best Portland Cement	34	6	per ton, delivered.	
Best Ground Blue Lias Lime	25	6	"	"

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	12s 6d. per yard, delivered.
Stourbridge Fire-clay in sacks,	28s. od. per ton at rly. dpt.

[See also page 221.

CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c., Supplied by	Tenders to be delivered
*Sinking Well	Malling Union	The Clerk, Workhouse, West Malling	Sept. 10
Tall Chimneys	Manchester Corporation	C. S. Allott & Son, Engineers, 46, Brown-street, Manchester	do.
Bridge Works, Ulverston	Lancashire County Council	County Bridgemaster, Preston	do.
Stable, Lawrence Hill, Bristol	Great Western Railway Company.	G. K. Mills, Paddington Station, W.	do.
Road Works	Barking U.D.C.	C. F. Dawson, Surveyor, Public Offices, Barking	do.
Quartzite (200 tons)	Christchurch Town Council	E. J. Legg, Surveyor, Town Hall, Christchurch	do.
Warehouse, King-street	Glasgow Corporation	M'Kissack & Sons, Architects, 68, West Regent-street, Glasgow	do.
Coastguard Station, Kilkeel, co. Down	Office of Works	A. Ferguson, Donegall-square West, Belfast	do.
Cemetery Works	New Wortley Burial Board	H. Williams, Board Room, New Wortley, Leeds	do.
Two Footbridges	Normanton (Yorks) U.D.C.	C. B. L. Fernandes, Council Offices, Normanton	do.
Wrought-iron Railings	Gosport U.D.C.	H. Frost, Surveyor, Town Hall, Gosport	Sept. 11
Sewerage Works	Godstone R.D.C.	T. C. Barralet, Surveyor, New Oxted	do.
Street Works	Todmorden Corporation	C. R. Pease, Engineer, Town Hall, Todmorden	do.
Additions to Schools, near Newbury		W. H. Bell, Architect, Market Place, Newbury	do.
Swimming Bath	Norton (Yorks) U.D.C.	W. Botterill, Council Buildings, Norton	do.
Chimney Stack, &c.	Stoke-on-Trent Guardians	Mr. Lynam, Architect, Stoke-on-Trent	do.
House & Shop, Tantobie, Durham	Miss Laidler	G. T. Wilson, Architect, 121, Durham-road, Blackhill	do.
30 Houses, Dewe-road	Brighton Town Council	F. J. C. May, Civil Engineer, Town Hall, Brighton	Sept. 12
Electrical Works Station	Bristol Corporation	H. F. Proctor, Engineer, Temple Back, Bristol	do.
Homes, Langho, near Blackburn	Lancashire County Council	H. Littler, Architect, County Offices, Preston	do.
Footbridge, Anton River	Andover R.D.C.	J. Wormald, Surveyor, South Cottage, Andover	do.
Church, Alexander-road, Penzance	.....	Rev. M. May, Finland House, Penzance	do.
Outfall Sewer	Weymouth Corporation	W. B. Morgan, Engineer, Weymouth	do.
Boundary Walls, &c., Blaydon	Winlaton School Board	W. Scott, 28, Mary-street, Blaydon	do.
Two Shops, West Vale, Halifax	.....	Walsh & Nicholas, Architects, Halifax	do.
Billiard Room, &c., Ilkley	.....	Hope & Son, Architects, 23, Bank-street, Bradford	do.
School, Tycroes	Llanedy School Board	J. Davies & Son, Architects, Cowell House, Llanelly	Sept. 13
School, Canterbury-road	Colchester School Board	Goodey & Cressall, Architects, Colchester	do.
Additions to Cottages, Trowbridge-road	.....	J. Ruble, Castle Hotel, Bath	do.
Shed, Ovenden, Yorks	.....	Walsh & Nicholas, Architects, Halifax	do.
Business Premises, near Sunderland	Hetton Downs Co-op. Society	W. & T. R. Milburn, Architects, 20, Fawcett-street, Sunderland	Sept. 14
Business Premises, Llanfairfechan	Mr. W. Eames	R. Davies, Architect, 125, High-street, Bangor	do.
Sewer	Maldon (Essex) R.D.C.	H. G. Heywood, Civil Engineer, Maldon	do.
Street Works, Springfield	Chelmsford R.D.C.	H. G. Warne, Surveyor, Avenue Chambers, Chelmsford	do.
Road Widening, Newlands	Cockermouth R.D.C.	J. B. Wilson, Civil Engineer, Court Buildings, Cockermouth	do.
Police Station, Patterdale, Westmorland	.....	J. Bentley, Surveyor, 7, Lowther-street, Kendal	do.
Houses, The Shore	Perth Town Council	R. M'Killop, Surveyor, Perth	do.
Pipes (750 tons)	Glasgow Corporation	J. M. Gale, Engineer, 45, John-street, Glasgow	do.
Farm Buildings, Flookburgh, Lancs	Miss Seath	C. P. Chambers, 34, Cornwallis-street, Barrow	do.
*Mortuary Buildings and Chapel	Paddington Metropolitan Borough	Surveyor's Department, Town Hall, Paddington	Sept. 16
178 Cottages, &c., Caeracca, Dowlais	.....	W. Dowdeswell, Architect, Treharris	do.
Additions to Inn, Crumlin, Mon.	Messrs. Webb & Co.	R. L. Roberts, Architect, Abercorn	do.
Two Cottages, Marston Green	Birmingham Guardians	Whitwell & Sons, Architects, 23, Temple-row, Birmingham	do.
School, Northumberland-road	Newcastle Town Council	J. W. Dyson, Architect, 67, Grey-street, Newcastle	do.
Two Houses, Pontlottyn	.....	W. Davies, Architect, Pontlottyn	do.
Asylum Works, Kirkburton, Yorks	West Riding County Council	J. V. Edwards, Surveyor, Wakefield	do.
Additions to Schools	Houghton Regis School Board	Brown & Son, Architects, Luton	do.
*Wood Paving Carriageways	London Corporation	The Engineer, Guildhall	Sept. 17
*Alterations to Underground Convenience	do.	do.	do.
*Asphalte Paving Works	do.	do.	do.
Road Works	Croydon Town Council	E. Mawdesley, Town Hall, Croydon	do.
Road Works, George-road	Amble U.D.C.	W. Gibson, Surveyor, 31, Queen-street, Amble	do.
Water Main, Wellwood-street	do.	do.	do.
*Wood Paving	Willesden District Council	O. Claude Robson, Public Offices, Dyne-road, Kilburn	do.
*New Harbour Offices	Swansea Harbour Trust	Harbour Offices, Swansea	Sept. 18
*Casual Wards, Gray's Inn-road	Holborn Union	W. Mellor, 17, Buckingham-street, Adelphi, W.C.	do.
*Road Works	Wimbledon U.D.C.	C. H. Cooper, Esq., Council Offices, The Broadway, Wimbledon	do.
*Making-up Roads	Chiswick U.D.C.	Surveyor of Council, Town Hall, Chiswick	do.
Wood Paving, Central Station, Newcastle	North-Eastern Railway Co.	C. A. Harrison, Central Station, Newcastle-on-Tyne	do.
*Extension of Kitchen Accommodation	Lambeth Guardians	Woodward & Brooks, Architects, 69, Kennington-oval, S.E.	do.
*Slop Vans, &c.	Woolwich Metropolitan Borough	F. Sumner, Borough Engineer, Maxey-road, Plumstead	Sept. 19
Rebuilding Hotel, Kirkmichael, N.B.	.....	J. Sim, Architect, Montrose	do.
Steel Rails (5,000 tons)	British Electric Traction Co., Ltd.	Engineer, Donington House, Norfolk-street, W.C.	Sept. 20
Gasworks	Buxton Town Council	H. Barker, Engineer, Town Hall, Buxton	Sept. 21
Public Offices, &c.	Ince-in-Makerfield U.D.C.	Heaton & Co., Architects, Wigan	do.
*Pulling Down and Clearing Site	Bermondsey Borough Council	Borough Surveyor, Town Hall, Spa-road, Bermondsey, S.E.	Sept. 23
*Kerbing, Channelling, &c., St. Ann's-road	Tottenham U.D.C.	Engineer to Council, Offices, 712, High-road, Tottenham	Sept. 24
*Mortuary Buildings, &c.	Poplar, &c., Sick Asylum District	Messrs. J. & S. F. Clarkson, 136, High-street, Poplar, E.	do.
*Cookery Room, Fencing, and Partitions	Walthamstow School Board	H. Prosser, Architect, School Board Offices, Walthamstow	do.
*Electricity Works	Willesden District Council	O. Claude Robson, Public Offices, Dyne-road, Kilburn	do.
*Underground Convenience, Forest Gate	West Ham Council	Borough Engineer, Town Hall, West Ham, E.	do.
*Making-up Streets	do.	do.	do.
*Painting Work at Hospital, Dagenham	do.	do.	do.
Pumping Engines	Middlesbrough Town Council	F. Baker, Civil Engineer, Municipal Buildings, Middlesbrough	Sept. 25
*Timber Staith	Gateshead County Borough	Borough Engineer, Town Hall, Gateshead	Sept. 26
*Wall	Lewisham Metropolitan Borough	Surveyor, Town Hall, Catford	do.
*Iron Fencing, carriage paid	do.	do.	do.
*Water Works, &c.	Strutton and Bude U.D.C.	Baldwin Latham, Parliament Mansions, Victoria-st., Westminster	Sept. 27
*New Coast Guard Buildings, Whitstable	Admiralty	Coast Guard Station, Whitstable	Oct. 1
Pumping Machinery	Leicester Corporation	E. G. Mawbey, Civil Engineer, Town Hall, Leicester	Oct. 3
*Mortuary	Woolwich Metropolitan Borough	F. Sumner, Borough Engineer, Maxey-road, Plumstead	Oct. 8
*Cottages, Totterdown Fields, Tooting	London County Council	Architect's Department, 18, Pall-mall East, S.W.	Oct. 19
Harbour Improvements, Annalong	Down County Council	County Surveyor, Court House, Downpatrick	No date
Villa, Biggar, N.B.	.....	J. R. & E. Pearson, Architects, 27, Castle-street, Edinburgh	do.
Additions to Schools, Chester	.....	J. H. Davies & Sons, Architects, Newgate-street, Chester	do.
*House, Canons' Park Estate, Edgware	.....	H. M. Lawson, Architect, 40, The Broadway, Ealing, W.	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Clerk of Works	Hackney Union	3*l.* 3*s.* per week	Sept. 11
*Assistant Examiner in Patent Office	Civil Service Commission	Not stated	Sept. 19
*Clerk of Works	Carlisle, &c., Co-op. Society, Ltd.	Not stated	Sept. 21
*Manual Training Instructors in Woodwork	School Board for London	100*l.* per annum	Sept. 26
*Clerk of Works	Midland Counties Idiot Asylum	Not stated	No date
*Clerk of Works	Gillingham & Grange U.D.Sch.Bd.	3*l.* 3*s.* per week	do.

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p. —. Contracts, pp. iv. vi. viii. x. & xx. Public Appointments, pp. xviii. & xx.*

PRICES CURRENT (*Continued*).

STONE.

	s. d.	
Ancaster in blocks	2 0	per ft. cube, deld. rly. dep3t.
Bath "	1 7	" "
Farleigh Down Bath	1 8	" "
Beer in blocks	1 6½	" "
Grinshill "	1 10	" "
Brown Portland in blocks	2 2	" "
Darley Dale in blocks	2 1½	" "
Red Corsehill "	2 5	" "
Red Mansfield "	2 4½	" "
Hard York in blocks	2 10	" "
Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)	2 8	per ft. super at rly. depôt
" " 6 in. Rubbed Ditto	3 0	" "
" " 3 in. sawn both sides slabs (random sizes)	1 3	" "
" " 2 in. self-faced Ditto	0 9½	" "
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube. deld. rly. depôt
" " " 6-in sawn both sides landings	2 7	per ft. super. deld. rly. depôt.
" " " 3-in. do.	1 2½	" "

SLATES.

in. in.	£ s. d.	
20×10 best blue Bangor	11 5 0	per 1000 of 1200 at ry. dep.
" best seconds "	10 15 0	" "
16× 8 best "	6 2 6	" "
20×10 best blue Portmadoc	10 18 0	" "
16× 8 best blue Portmadoc	6 0 0	" "
20×10 best Eureka unfading green	11 2 6	" "
16× 8 " "	6 15 0	" "
20×10 Permanent green	10 0 0	" "
16× 8 " "	5 12 6	" "

TILES.

	s. d.	
Best plain red roofing tiles	41 6	per 1,000 at rly. depôt
Hip and valley tiles	3 7	per doz. " "
Best Broseley tiles	48 6	per 1,000 " "
Hip and valley tiles	4 0	per doz. " "
Best Ruabon Red, brown or brindled Do. (Edwards)	57 6	per 1,000 " "
Do. ornamental Do.	60 0	" " "
Hip tiles	4 0	per doz. " "
Valley tiles	3 9	" " "
Best Red or Mottled Staffordshire Do. (Peakes)	50 9	per 1,000 " "
Hip tiles	4 1	per doz. " "
Valley tiles	3 8	" " "

WOOD.

BUILDING WOOD.—YELLOW.

	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14 10 0	16 10 0
Deals: best 3 by 9	13 10 0	14 10 0
Battens: best 2½ in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.	11 0 0	12 0 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals seconds	1 0 0	less than best
Battens: seconds	0 10 0	" " "
2 in. by 4 in. and 2 in. by 6 in.	9 0 0	10 10 0
2 in. by 4½ in. and 2 in. by 5 in.	9 0 0	10 0 0
Foreign Sawn Boards—		
1 in. by 12 in. by 11 in.	0 10 0	more than battens.
¼ in.	1 0 0	more than battens.
Fir timber: Best middling Danzig or Memel (average specification)	At per load of 50 ft. 4 10 0	5 0 0
Seconds	4 5 0	4 10 0
Small timber (8 in. to 10 in.)	3 12 6	3 15 0
Swedish balks	2 15 0	3 0 0
Pitch pine timber (35 ft. average)	3 0 0	3 10 0

JOINERS' WOOD.

	At per standard.	
White Sea: First yellow deals, 3 in. by 11 in.	25 0 0	26 0 0
3 in. by 9 in.	22 0 0	23 0 0
Battens, 2½ in. and 3 in. by 7 in.	18 0 0	20 0 0
Second yellow deals, 3 in. by 11 in.	20 0 0	21 0 0
" " 3 in. by 9 in.	18 0 0	19 0 0
Battens, 2½ in. and 3 in. by 7 in.	14 0 0	15 0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	14 10 0	15 10 0
Battens, 2½ in. and 3 in. by 7 in.	12 0 0	12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	22 0 0	23 0 0
Do. 3 in. by 9 in.	19 0 0	20 0 0
Battens	14 0 0	15 0 0
Second yellow deals, 3 in. by 11 in.	15 10 0	16 10 0
Do. 3 in. by 9 in.	14 0 0	15 0 0
Battens	11 10 0	12 0 0
Third yellow deals, 3 in. by 11 in.	13 10 0	14 10 0
Do. 3 in. by 9 in.	13 0 0	13 10 0
Battens	10 10 0	11 10 0
White Sea and Petersburg:—		
First white deals, 3 in. by 11 in.	15 0 0	16 0 0
" " " 3 in. by 9 in.	14 0 0	15 0 0
Battens	12 0 0	13 0 0
Second white deals 3 in. by 11 in.	14 0 0	15 0 0
" " " 3 in. by 9 in.	13 0 0	14 0 0
" " battens	10 10 0	11 10 0
Pitch pine: deals	16 0 0	18 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—		
First, regular sizes	30 0 0	33 0 0
Broads (12 in. and up)	2 0 0	more.
Oddments	22 0 0	24 0 0
Seconds, regular sizes	24 10 0	26 10 0
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—Planks, per ft. cube	0 3 6	0 4 6
Danzig and Stettin Oak Logs—		
Large, per ft. cube	0 2 6	0 3 0
Small " "	0 2 3	0 2 6
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 0 7
in. do. do.	0 0 7	• • •

PRICES CURRENT (*Continued*).

WOOD.

	At per standard. £ s. d.	£ s. d.
Dry Mahogany—		
Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	16 0 0	20 0 0
American Whitewood Planks—		
Per ft. cube	0 3 0	0 3 6
Prepared Flooring—	Per square	
1 in. by 7 in. yellow, planed and shot	0 13 6	0 16 6
1 in. by 7 in. yellow, planed and matched	0 13 6	0 17 6
1¼ in. by 7 in. yellow, planed and matched	0 16 0	1 1 0
6 in. at 6d. per square less than 7 in.		
1 in. by 7 in. white, planed and shot	0 11 0	0 13 0
1 in. by 7 in. white, planed and matched	0 11 6	0 13 6
1¼ in. by 7 in. white, planed and matched	0 14 0	0 16 6
6 in. at 6d. per square less than 7 in.		

JOISTS, GIRDERS, &c.

	In London, or delivered to Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 15 0	7 15 0
Compound Girders " "	8 15 0	10 0 0
Angles, Tees and Channels, ordinary sections	8 12 6	10 12 6
Flitch Plates	8 15 0	9 10 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 5 0	9 0 0

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON.—		
Common Bars	8 0 0	8 10 0
Staffordshire Crown Bars, good merchant quality	8 10 0	9 0 0
Staffordshire "Marked Bars"	10 10 0	• • •
Mild Steel Bars	9 0 0	9 10 0
Hoop Iron, basis price	9 5 0	9 15 0
" " galvanised	16 0 0	• • •
(* And upwards, according to size and gauge.)		
Sheet Iron, Black.—		
Ordinary sizes to 20 g.	10 0 0	• • •
" " to 24 g.	11 0 0	• • •
" " to 26 g.	12 10 0	• • •
Sheet Iron, Galvanised, flat, ordinary quality.—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	12 10 0	• • •
" " 22 g. and 24 g.	13 0 0	• • •
" " 26 g.	14 0 0	• • •
Sheet Iron, galvanised, flat, best quality.—		
Ordinary sizes to 20 g.	16 10 0	• • •
" " 22 g. and 24 g.	17 0 0	• • •
" " 26 g.	18 10 0	• • •
Galvanised Corrugated Sheets.—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 10 0	• • •
" " 22 g. and 24 g.	13 0 0	• • •
" " 26 g.	14 0 0	• • •
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	12 5 0	• • •
" " 22 g. and 24 g.	13 5 0	• • •
" " 26 g.	14 5 0	• • •
Cut nails, 3 in. to 6 in. (Under 3 in. usual trade extras.)	9 10 0	10 0 0

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	14 17 6	• • •
Pipe in coils	15 7 6	• • •
Soil Pipe	17 17 6	• • •
ZINC—Sheet—		
Vieille Montagne ton	24 10 0	• • •
Silesian	24 0 0	• • •
COPPER—		
Strong Sheet per lb.	0 1 0½	• • •
Thin "	0 1 2	• • •
Copper nails "	0 1 2	• • •
BRASS—		
Strong Sheet "	0 0 11	• • •
Thin "	0 1 1	• • •
TIN—English Ingots "	0 1 4½	• • •
SOLDER—Plumbers' "	0 0 7	• • •
Tinmen's "	0 0 8	• • •
Blowpipe "	0 0 9	• • •

PLASTER, &c.

	s. d.	
Coarse Plaster	30 0	per ton delivered.
Fine "	38 0	" "
Superfine "	42 0	" "
Coarse Keenes and Parian cement	55 0	" "
Fine do. do.	60 0	" "
Robinson's Fireproof Cement	50 0	" "
Do. Fine white, finishing (Exclusive of the ordinary charge for sacks.	55 0	" "
Whiting	27 0 to 30 0	" "
Cow hair for plastering	£9 0 0	" "

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	3d. per ft. delivered.
" " fourths	2¾d. " "
21 oz. thirds	3¾d. " "
" " fourths	3½d. " "
26 oz. thirds	5d. " "
" " fourths	4¾d. " "
32 oz. thirds	6d. " "
" " fourths	5¾d. " "
Fluted sheet, 15 oz.	3½d. " "
" " 21 "	4½d. " "
⅛ Hartley's Rolled Plate	3d. " "
⅛ " " "	3½d. " "
¼ " "	4d. " "

PRICES R

LS, &c.

	£ s. d
Raw Linseed Oil in pipes per gallon	0 2 10
" " " in barrels	0 2 11
" " " in drums "	0 3 1
Boiled " " in pipes "	0 3 0
" " " in barrels	0 3 1
" " " in drums "	0 3 3
Turpentine, in barrels "	0 2 3
" in drums "	0 2 5
Genuine Ground English White Lead per ton	22 0 0
Red Lead, Dry "	22 10 0
Best Linseed Oil Putty per cwt.	0 9 0
Stockholm Tar per barrel	1 10 0

VARNISHES, &c.

	per gallon £ s. d
Fine Elastic Copal Varnish for outside work	0 16 6
Best Elastic Copal Varnish for outside work	1 0 0
Best Elastic Carriage Varnish for outside work	0 16 0
Best Hard Oak Varnish for inside work	0 10 6
Best Extra Hard Church Oak Varnish for inside work	0 10 6
Fine Hard Copal Varnish for inside work	0 16 0
Best Hard Copal Varnish for inside work	1 0 0
Best Hard Carriage Varnish for inside work	0 16 0
Extra Pale Paper Varnish	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 6
Berlin Black	0 16 0
Knotting	0 10 0
Best French and Brush Polish	0 10 0

TO CORRESPONDENTS.

H. W. (Below our limit.)

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TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of tenders accepted unless the amount of the tender is given, nor any list in which the lowest tender is under £100, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

BLAYDON.—For rebuilding the Black Ball Inn, for the trustees of the late Robert Newton. Mr. A. Gibson Kyle, architect, 1, St. Nicholas Buildings, Newcastle. Quantities by the architect:—

Ross & Son	£2,091 16 0	Woodall & Wilson	£1,818 10 8
Thompson & Co.	2,015 6 6	Armstrong	1,685 3 8
Elliott Bros.	1,880 2 9	H. & B. Arkless, Gateshead*	1,649 16 9
Hunting & George	1,857 13 11		

BRANKSOME.—For the execution of road works, Cromer, Station, and Cardigan roads, for the Urban District Council. Mr. S. J. Newman, Surveyor, Council Buildings, Branksome:—

S. Saunders	£928 15 3	Grounds & Newton	£688 0 0
G. Maidment	785 11 2	H. C. Brixey, Branksome*	683 11 5
G. T. Budden	752 7 3		

BRISTOL.—For the erection of sanitary annexe at Stapleton Workhouse, Bristol, for the Guardians of the Poor of the City and County of Bristol. Mr. F. W. Brock, architect, St. Peter's Hospital, Bristol. Quantities by the architect:—

F. Wall	£980	M. Durnford	£847
Foster	945	J. Browning	845
Daltry & Son	930	E. Clark, Fishponds, Bristol*	795
Gorvett	882	I. Hatherly	763
A. Dowling	863		

[Architect's estimate, £806.]

CARDIFF.—For the erection of a school, Whitchurch, for the School Board. Messrs. R. & S. Williams, architects, Wharton-street, Cardiff. Quantities by architects:—

J. E. Evans	£4,800 0 0	G. Griffiths	£4,445 0 0
H. Gibbon	4 770 0 0	C. Dunn	4,440 0 0
James Allan	4,739 0 0	Evans & Bros.	4,345 10 0
F. Small	4,700 0 0	Couzens & Co.	4,296 18 0
David Davies	4,610 0 0	Thomas & Co.	4,227 0 0
E. Williams	4,555 9 8	Thomas Bevan	4,195 8 0
Turner & Sons	4,488 0 0	W. T. Morgan, Cardiff*	4,045 0 0
Cox & Bardo	4,466 4 0		

CLEVEDON (Somerset).—For the erection of main buildings, boiler-house, and chimney-stack, for Clevedon Steam Laundry Company. Mr. T. J. Moss-Flower, C.E., engineer, 2, Victoria Mansions, Westminster, S.W., and Baldwin-street, Bristol:—

W. A. Green, Clevedon* £1,845

See also next page.

EDMONTON.—For building three new water-closets and erecting fence, walls, and iron railings at Millfield House Schools Silver-street, Upper Edmonton, for the Guardians of the Strand Union. Mr. A. A. Kekwick, architect, 18 and 19, Outer Temple, Strand :—

Pollard & Brand	£533	T. G. Sharpington, Nunhead*	£355
J. Pavey	469	Colton & Co.	275
A. Monk	415		
H. C. Horswill	405		

EDMONTON.—For sanitary alterations at the workhouse, Silver-street, Upper Edmonton, for the Guardians of the Strand Union. Mr. A. A. Kekwick, architect, 18 and 19, Outer Temple, Strand :—

Finch & Co.	£1,083	A. H. Inns	£725
Love & Co.	1,065	R. P. Beattie, Victoria-street*	675
Dent & Hellyer	995	Stapleton & Sons	669
Doulton & Co.	914	Strange & Sons	618
F. H. Miller	907	H. C. Horswill	530
Lighting Corporation	887	Davis & Bennett	512
W. H. Tilley	792		

ERITH.—For Roman Catholic Monastery :—

Goddard & Sons	£5,032	Minter	£4,825
Longley & Son	4,989	Ennes Bros., Erith*	4,600

HUNSLET.—For the construction of settling tanks, filters, &c., for the Rural District Council. Messrs. Marriott, Son, & Shaw, engineers, Dewsbury :—
John Leightley, Carlton, Wakefield £260 3

LECHLADE.—For alterations and additions to the Swan Hotel, Lechlade, Gloucestershire, for Messrs. R. B. Bowby & Co., Limited, Swindon. Messrs. William Drew & Sons, architects, Swindon :—
Joseph Williams, Swindon* £384 10 6

LEYTON.—For the erection of a block of school buildings, to be known as the Farmers-road Schools, for the Leyton School Board. Mr. William Jacques, architect, 2, Fen-court, E.C. Quantities by Messrs. R. L. Curtis & Sons :—

Watts, Johnson, & Co.	£30,914	W. J. Maddison	£28,094
Perry & Co.	28,753	Gregar & Son	26,223
Stimpson & Co.	28,530	G. Sharpe	26,165
Battley, Son, & Holness	28,187	A. Reed	24,986
		F. J. Coxhead	24,761

SOUTH BRENT (Devon).—For the erection of a farmhouse, Aish, for Mr. J. Yabsley, of Ashford, Aveton Gifford, Devon. Mr. T. W. Pearse, surveyor, Stoliford, Modbury :—

W. H. Soper	£563 17 6	F. Preston	£435 17 6
Herbert Drew	525 0 0	Veale & Son	428 10 0
Hosking Bros.	491 11 0	R. V. Codd, South Brent*	410 0 0
Damerell & Hodge	483 0 0		

THORNABY-ON-TEES.—For sewering, forming, &c., six streets, for the Corporation. Mr. C. T. Johnson, Borough Engineer, Town Hall, Thornaby-on-Tees :—

M. O'Doherty	£921 14 11	Wm. Robinson, 13, Russell-st., Stockton	£519 11 0
A. E. Hobbs	620 9 7		
J. G. Spooner	545 5 6		

WOKING.—For the erection of a detached house, St. John's-road, Woking, for Mr. F. H. Wenham. Mr. William G. Jones, architect, Woking :—

Gay Bros.	£900	Harris & Son, Woking*	£875

WOOTTON BASSETT.—For additions and alterations to the Crown Hotel, Wootton Bassett, for Mr. Howard Horsell, Beaufort Brewery. Messrs. William Drew & Sons, architects, Swindon :—

W. Blackwell	£214 0	A. J. Colborne, Swindon*	£167 13
J. Williams	210 0		
C. Wilkins	172 16		

THORPE (Norfolk).—For extensions and alterations to the Norfolk County Asylum, Thorpe, near Norwich. Mr. A. J. Wood, architect, 22, Surrey-street, Victoria Embankment, W.C. Quantities by Messrs. Widnell & Trollope, 20, Tothill-street, Westminster, S.W. :—

Cornish & Gaymer	£67,157	Kerridge & Shaw	£59,237
Rudd & Son	63,900	Youngs & Son	58,997
Johnson & Co., Ltd.	60,127	Downing & Son	58,839
C Wall	59,527	G. Riches	58,497
Foster & Dickson	59,300	J. S. Smith	57,497
Patman & Fotheringham, Ltd.	59,250	H. Lovatt	56,800
Pattinson & Sons	59,243	King & Son*	52,353

Electric Plant.

Scott & Mountain, Ltd.	£2,858 0 0	Siemens Bros. & Co., Ltd.	£2,595 10 6
Royce & Co., Ltd.	2,762 10 0	Reavell & Co., Ltd.	2,500 0 0
Crompton & Co., Ltd.	2,657 0 0	Lawrence, Scott, & Co., Ltd.*	2,456 6 0
Holmes & Co.	2,638 0 0		
Alliance Electrical Co.	2,612 9 8		

Wiring and Fittings.

Hemingway & Pritt	£6,654 1 2	Hall & Hackblock	£4,081 9 7
Crampton & Co.	4,750 0 0	Furse & Co.	3,964 6 6
Alliance Electrical Co.	4,224 14 9	S. H. Heywood	3,749 2 10
		Mann & Co.*	3,484 11 7

WROUGHTON.—For rebuilding the Three Horse Shoes Inn, Wroughton, near Swindon, for Mr. Howard Horsell, Beaufort Brewery, Wootton Bassett. Messrs. William Drew & Sons, architects, Regent Circus, Swindon :—

C. Wilkins	£978 0 0	Joseph Williams, Swindon*	£614 7 0
W. Cowdrey	775 0 0		
A. J. Colborne	619 15 6		

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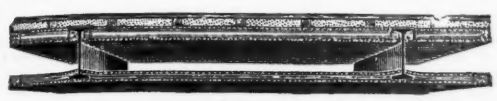

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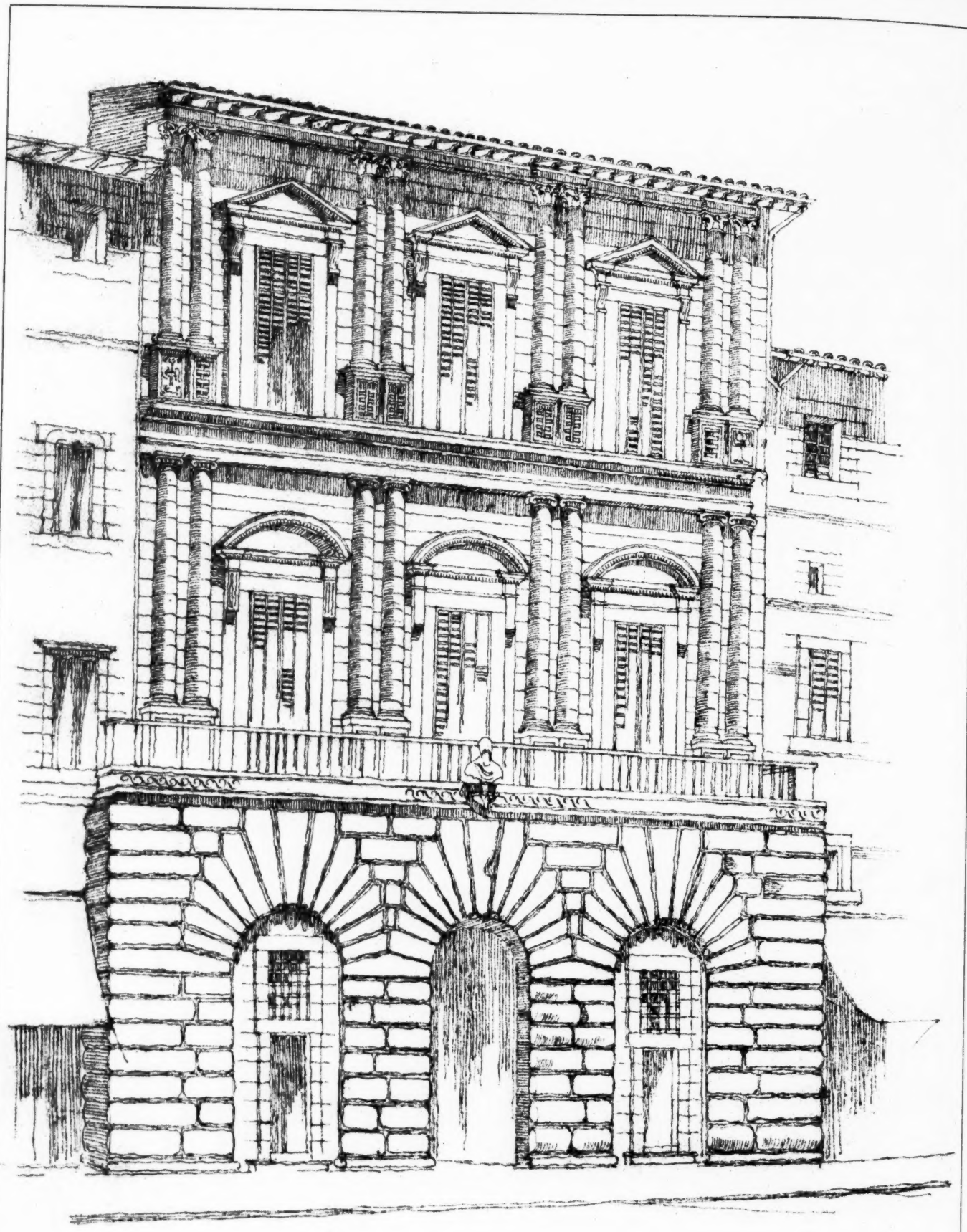

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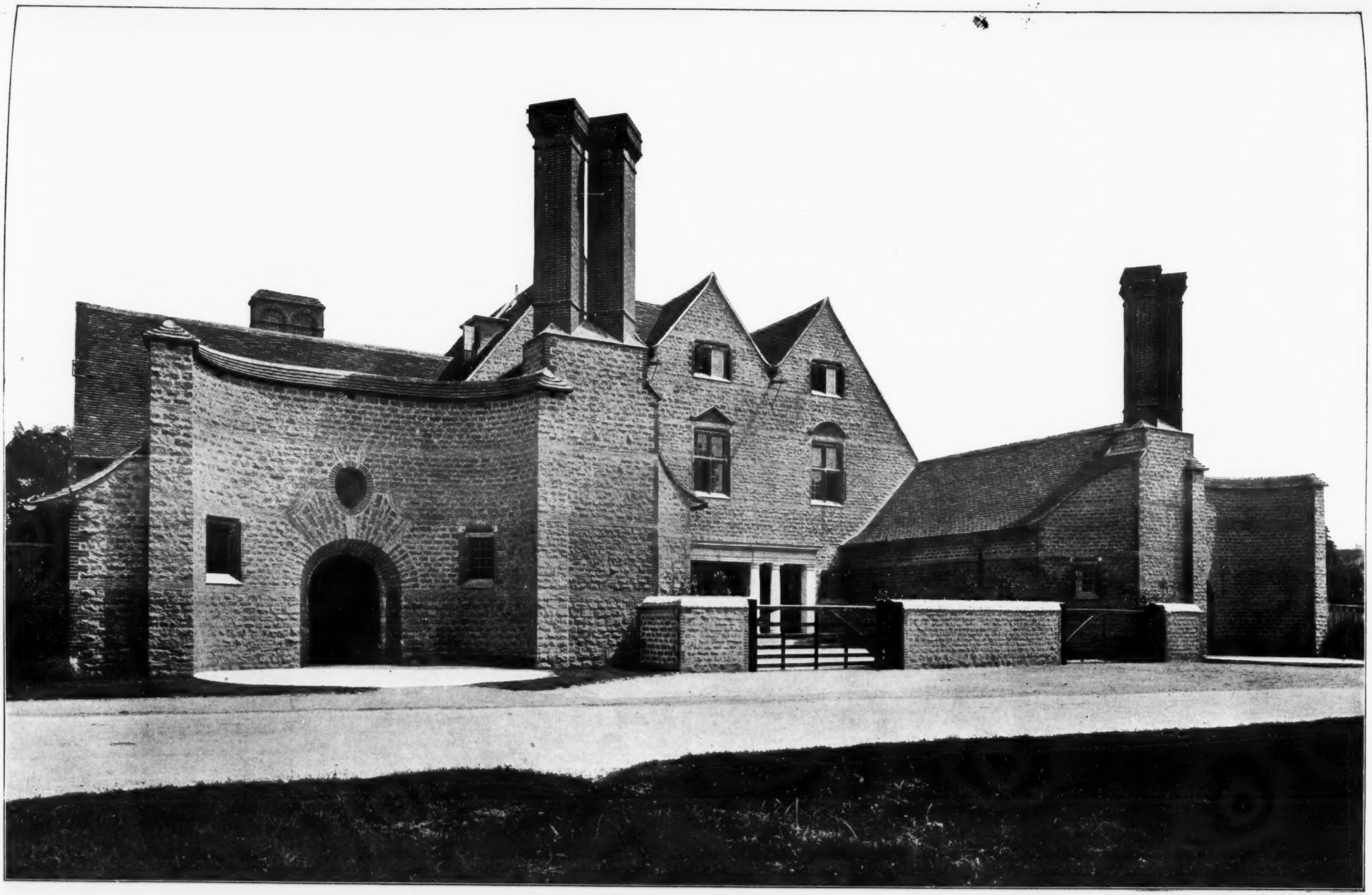

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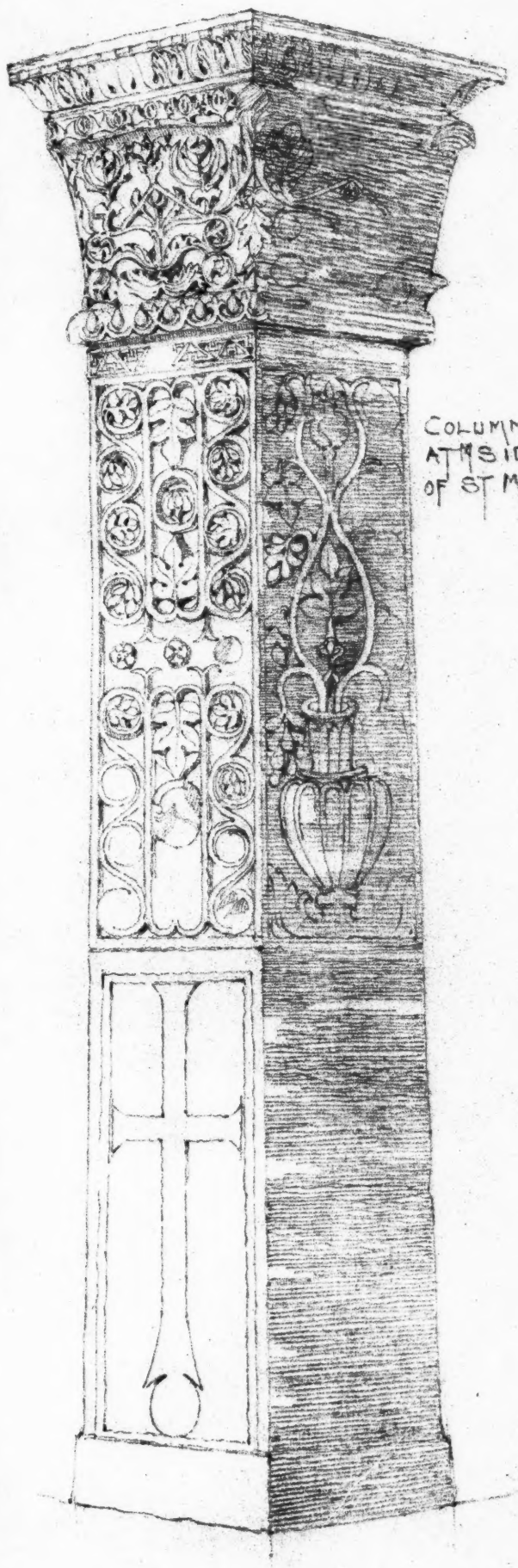

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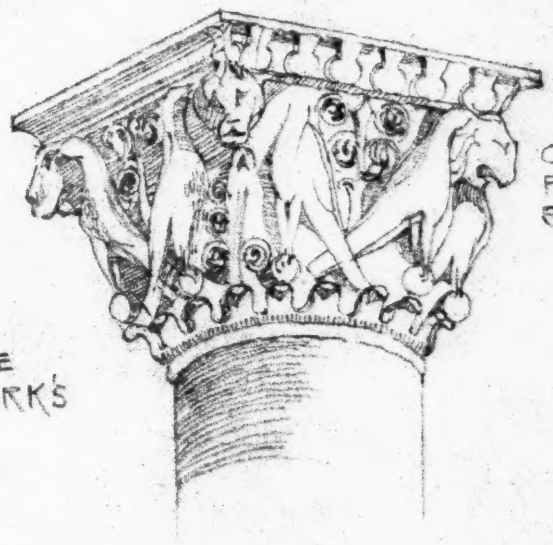

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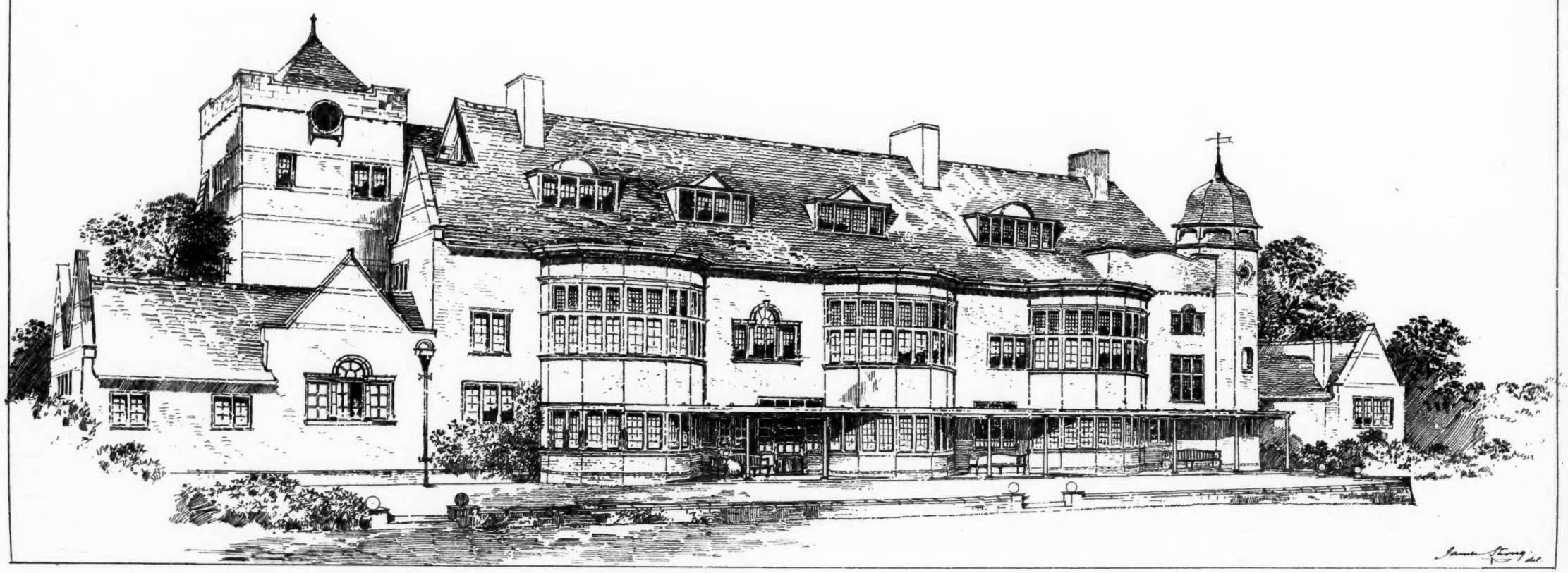

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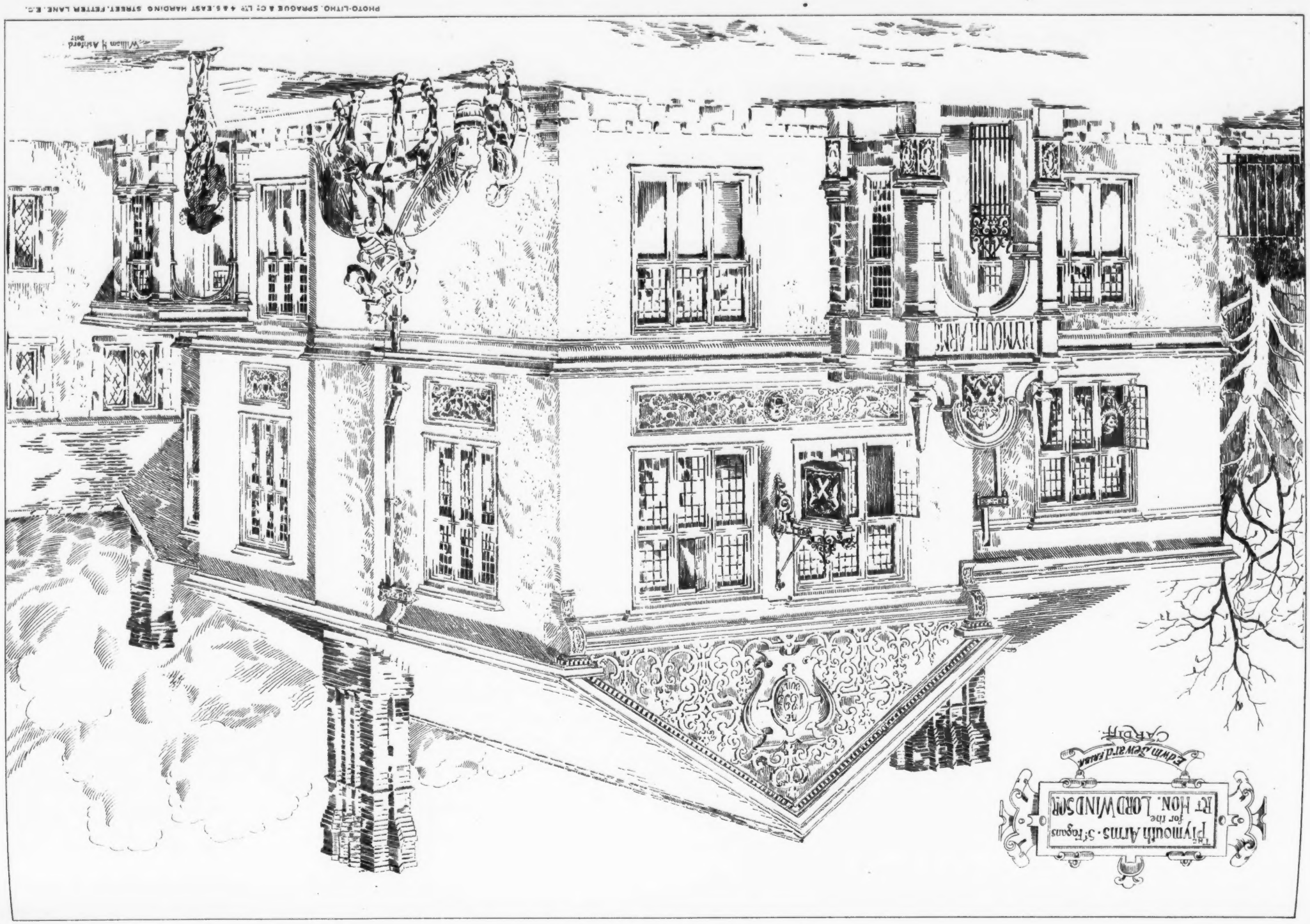

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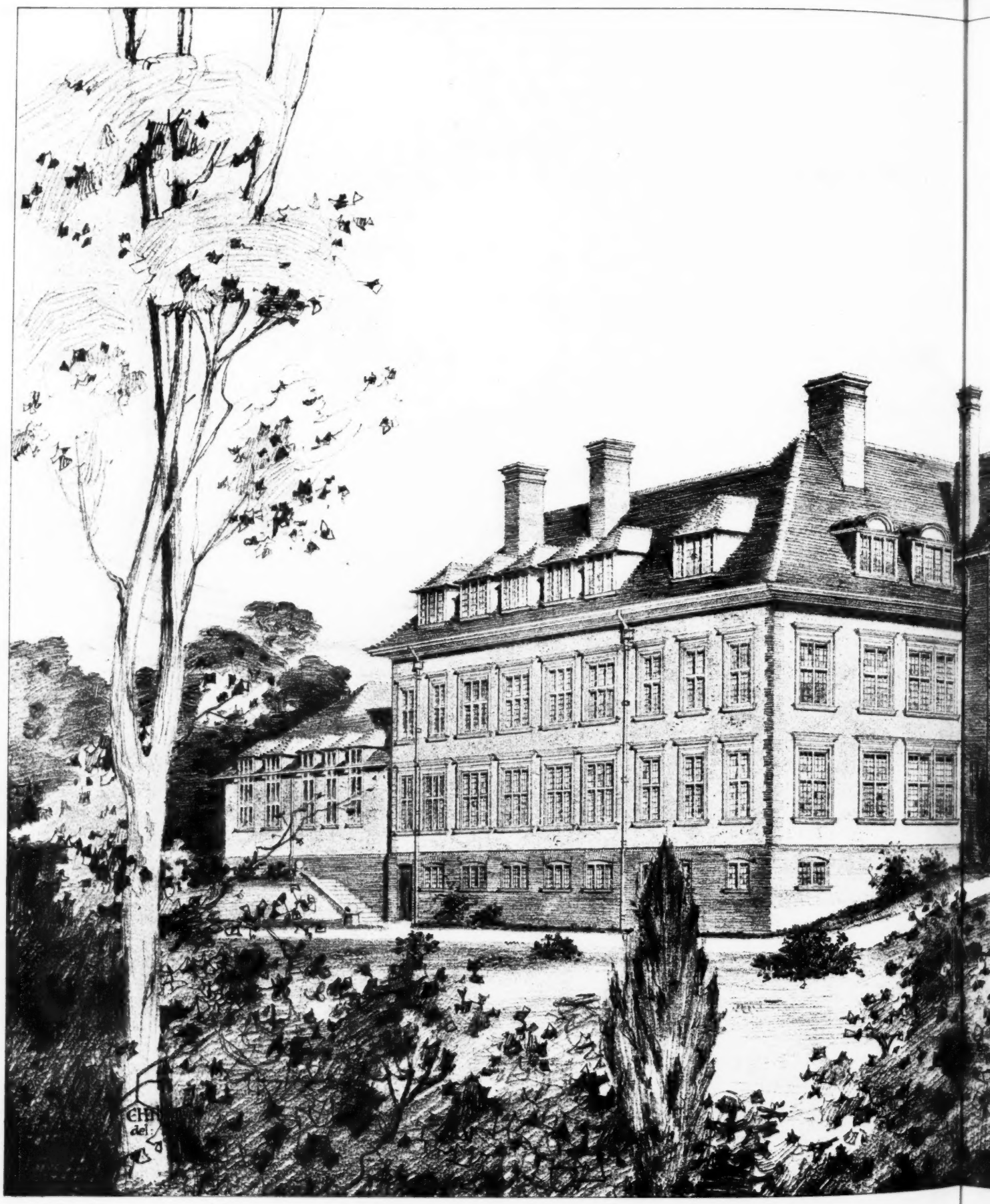

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